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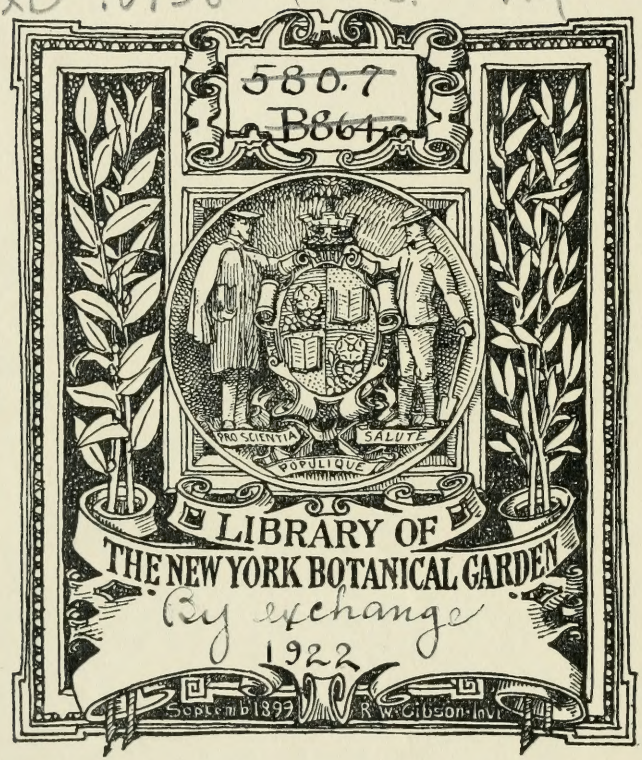

DEPARTEMENT VAN LANDBOUW, NIJVERHEID EN HANDEL

„'S LANDS PLANTENTUIN"

(„JARDIN BOTANIQUE DE BUITENZORG")

Bulletin du Jardin Botanique

Rédigé par

Dr. W. M. DOCTERS VAN LEEUWEN,
Directeur du Jardin Botanique

Dr. F. C. VON FABER,
Chef des Laboratoires Botaniques

et

Dr. J. J. SMITH,
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Série III. — Volume IV.

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VERZEICHNIS DER IN NIEDERLÄNDISCH OST-INDIEN BIS DEM JAHRE 1920 GEFUNDENEN MYXOMYCETES, FUNGI UND LICHENES

von

Dr. C. et D. VAN OVEREEM—DE HAAS.

Die mykologische Literatur vom Niederländisch Ost-Indischen Gebiete liegt in den verschiedensten Zeitschriften und Abhandlungen zerstreut. Abgesehen von einer kleinen Arbeit über die Myxomyceten existieren zusammenfassende Arbeiten darüber gar nicht. Deswegen meinen wir, dass die Zusammenstellung einer Namenliste mit Hinweisung auf die Literatur für diejenigen, welche sich mit diesen Gruppen befassen, nicht unwillkomm sein wird. Die Forschung der mykologischen und lichenologischen Flora dieser Gegenden steht jetzt noch im Anfangsstadium. Die ziemlich grosse Literaturliste erzeugt vielleicht eine entgegengesetzte Meinung, aber dies ist ein Irrtum, denn zum grössten Teil besteht sie aus phytopathologischen Mitteilungen. Viel weiter ist man nicht gegangen. Eine Folge davon ist, dass jetzt noch die grösste Begriffsverwirrung über Verbreitung und Vorkommen dieser Gruppen herrscht. Auch auf mykophagischem Gebiete herrscht noch die grösste Unklarheit. Sogar von den häufig vorkommenden Arten, welche von den Eingeborenen für verschiedene Zwecke benützt werden, weiss man fast nichts.

Von allen weiteren Besprechungen können wir direkt die Gruppe der Flechten ausschalten. Dann und wann wurden einige Arten davon gesammelt, aber die Literatur darüber ist spärlich und in den Sammlungen sind sie fast nicht vertreten.

Am besten sind die Myxomyceten, von PENZIG für die Flora von Buitenzorg bearbeitet, bekannt geworden.

Von den Pilzen wurden durch Ausländer, die meistens Gäste des Treub-Laboratoriums und mit wenigen Ausnahmen keine Mykologen waren, kleine Sammlungen nach Europa mitgeführt, welche dort von Spezialisten bearbeitet wurden. Weil viele dieser Bearbeitungen aus den letzten Jahren des vorigen Jahrhunderts stammen, zählt die Liste viele Arten, welche jetzt weiter aufgeklärt werden müssen. Auch macht die Konservierung in Alkohol ohne eine Voruntersuchung an Ort und Stelle, die Beschreibung vieler Arten wertlos.

Die wichtigsten Sammlungen sind hier in kurzem aufgezählt.

JUN 8 - 1925

Die ältesten Sammlungen rühren von KHUHL, VAN HASSELT, JUNGHUHN und KORTHALS her. Es sind hauptsächlich *Polyporaceae*, welche von LÉVEILLÉ [1]) bearbeitet wurden. Später wurden diese Sammlungen, welche in „'s Rijks Herbarium'' in Leiden aufbewahrt werden, soweit sie noch erhalten waren, von BRESADOLA und LLOYD revidiert. Auch BLUME und NEES VON ESENBECK, sowie JUNGHUHN selbst haben eine Anzahl Pilze beschrieben. Von VAN HASSELT und KHUHL existiert in der Bibliothek von Buitenzorg noch eine Kollektion farbiger Abbildungen, woraus hervorgeht, dass sie auch schon auf die *Agaricaceen* ihre Aufmerksamkeit gerichtet hatten. Publiziert sind diese Untersuchungen, soweit wir nachgehen konnten, nie, ebensowenig wie eine Sammlung Pilzabbildungen, die unter Leitung von BLUME verfertigt worden ist, welche in Leiden aufbewahrt wird.

Wichtige Sammlungen machte auch der schweizerische Botaniker ZOLLINGERIN in den Jahren 1842—1848, wovon die Pilze auch von LÉVEILLÉ und die Flechten von HEPP bearbeitet wurden.

Weiter sind hier noch die Sammlungen von KURZ zu nennen.

Dann folgen in den letzten Jahren des vorigen und in den ersten Jahren dieses Jahrhunderts die kleineren Sammlungen von den verschiedenen ausländischen Besuchern von Buitenzorg: CLAUTRIAU, ENGLER, VON HÖHNEL, HOLTERMANN, MASSART, NYMAN, PENZIG, RACIBORSKI, SCHRÖTER, SOLMS LAUBACH, USTERI, WARBURG, ZIMMERMANN, u. a. Diese alle haben mehr oder weniger wichtige Beiträge zur mykologischen Flora dieser Gegenden geliefert. Weitaus das meiste Material bearbeitete HENNINGS in Berlin, während EDUARD FISCHER in Bern viele interessante Formen mehr eingehend studierte. Dass die Beschreibung dieser Formen manchmal viel zu wünschen übrig liess, war nicht zu umgehen, weil das Material nicht im frischen Zustande bei der Bearbeitung vorgelegen hatte. In dieser Hinsicht machen die Publikationen der Mykologen VON HÖHNEL, HOLTERMANN, PENZIG und RACIBORSKI eine Ausnahme. Auch von dem berühmten Bryologen MAX FLEISCHER, welcher sich viele Jahre auf Java aufhielt, wurden viele interessante Arten entdeckt. Alle diese Untersuchungen geben aber zusammen noch gar keine Vorstellung von dem mykologischen Reichtum dieser Gegenden.

Das Gebiet der parasitischen für die Kulturen wichtigen Fungi wurde etwas ausführlicher studiert und hier dürfen wir die Uutersuchungen von BERNARD, KOORDERS, RANT, RACIBORSKI, RUTGERS, WENT und WAKKER an erster Stelle nennen.

Jetzt einige Worte über die Sammlungen in den Herbarien in Leiden und Buitenzorg. Das von den Ausländern gesammelte Material ist in diesen Sammlungen zum grössten Teil nicht vertreten, weil früher kein Wert auf die Abgabe von Doubletten gelegt wurde. Zum Teile ist es in Berlin

[1]) Im Jahre 1844 besuchte LÉVEILLÉ das Herbarium in Leiden.

vorhanden (Sammlungen von ENGLER, NYMAN, USTERI, WARBURG, ZIMMERMAN), zum teile liegt es in verschiedenen ausländischen Herbarien zerstreut.

Im Herbarium in Leiden befinden sich, soweit sie erhalten sind [1]) die Originale von JUNGHUHN, und die von LÉVEILLÉ beschriebenen Arten; weiter fünf von WENT gesammelte Arten, wovon drei von OUDEMANS neu beschrieben worden sind. [2]). Ausserdem besitzt Leiden noch wichtige Sammlungen, meistens von Polyporeen, welche von den Herrn JACOBSON und VAN HEURN und von VAN DER LEK auf Sumatra gesammelt wurden, alles noch unbestimmt.

Im Herbarium von Buitenzorg sind die von PENZIG und SACCARDO beschriebenen Arten ziemlich vollständig vertreten; weiter findet man dort die Myxomyceten von PENZIG, viele Arten von RACIBORSKI und etwas Material von JUNGHUHN (das letzte aber hat sich slecht erhalten.) Auch befinden sich in diese Sammlung einige Kollektionen Polyporeen, die von DOCTERS VAN LEEUWEN gesammelt und neuerdings teilweise von LLOYD bestimmt worden sind.

Ueber die Zusammenstellung der Liste ist folgendes zu bemerken.

Bei der Zusammenstelling der Literaturliste haben wir angefangen die Uebersicht von Süd Asien in LINDAU et SYDOW, Thesaurus literaturae mycologicae et Lichenologicae Vol. V zu benützen. Diese ist aber äusserst unvollständig Weiter benützten wir Just's Botanischen Jahresbericht und die Literaturlisten in der Hedwigia. Die Abhandlungen, deren Inhalt uns nur aus Referaten bekannt geworden ist, sind mit dem Zeichen * versehen. Weitaus die meisten Abhandlungen aber haben wir selbst durchgesehen.

Weil die Literatur ausserordentlich zerstreut ist und oft in wenig zugänglichen Zeitschriften vorkommt, war es manchmal schwierig, uns alle Arbeiten zu verschaffen. Auch sind die Titel oft so nichts sagend, dass man nicht zum voraus wissen kann, ob eine bestimmte Abhandlung für unsere Zwecke in Betracht kommt.

Eine weitere Schwierigkeit entstand bei der Durchmusterung der phytopathologischen Literatur. In zahlreichen Fällen wird die Krankheit und der Erreger ausführlich besprochen, ohne dass der Name des Pilzes genannt wird. Obschon diese Methode stark zu verurteilen ist und in der Literatur schon viel Verwirrung gestiftet hat, wird sie noch immer dann und wann gefolgt. Wir haben aber um die Liste so vollständig wie möglich zu machen, so viel möglich darin eingetragen, wodurch die Literaturliste aber an Vollständigkeit eingebüsst hat. Weil wir aber überzeugt waren doch nicht etwas vollständiges liefern zu können, was schon aus der Art der Zusammenstellung hervorgeht, haben wir uns darüber hinweggesetzt.

[1]) Siehe hierüber bei LLOYD.

[2]) Das übrige Material (alles in Alcohol) dieser Sammlung wird aufbewahrt in Amsterdam in den Sammlungen des Bot. Instituts, ist unbestimmt und verkehrt in einem schlechten Zustande.

Die Gattungen, Familien and Gruppen sind hauptsächlich nach dem System in ENGLER & PRANTL geordnet. Die Arten stehen aus praktischem Grunde in alphabetischer Folge. Bei den Myxomyceten folgten wir LISTER, Mycetozoa sec. edition.

Man bedenke beim Benützen der Liste, dass diese in keiner Hinsicht kritisch ist unt dass dies bei der Zussammenstelling auch gar nicht unsere Absicht war. Oft war es sehr schwierig, diese heterogene Literaturmenge, welche aus sehr verschiedenen Zeiten herrührt und in Nomenklatur manchmal gar nicht übereinstimmt, zu einem Ganzen zu verarbeiten.

Was die Begrenzung des Gebietes anbelangt, so haben wir uns ausschlieszlich auf das Niederländische Gebiet beschränkt, mit Ausnahme von Englisch Borneo, Portugiesisch Timor und den beiden anderen Teilen von Neu-Guinea. Weil die Untersuchungen höchst unvollständich sind, konnte die Liste doch keine Vorstellung der Verbreitung der Arten geben und war es nutzlos geographisch verwandte Gebiete auch aufzunehmen.

Zum Schluss möchten wir einige Worten des Dankes an die Personen und Instituten richten, welche uns bei unserer Arbeit unterstützt haben. An erster Stelle nennen wir hier Prof. Dr. HANS SCHINZ in Zürich, in dessen Institut wir unsere Arbeit anfingen. Herzlich danken wir hier auch den Professoren DIELS und LINDAU in Berlin für ihre Hilfe und Unterstützung bei unseren Arbeiten im Botanischen Institut in Dahlem, wo wier die Arbeit zum grössten Teile fertig machten. Auch ein Wort des Dankes an Herrn C. SCHUSTER, Bibliothekar des Instituts dürfen wir hier nicht vergessen. Weiter danken wir hier den verschiedenen Bibliotheken in Holland für ihre Hilfe: die Bibliothek von Teyler's Stiftung in Haarlem, von 's Rijks Herbarium in Leiden, vom Kolonial Institut in Amsterdam und die Königliche Bibliothek in 's Gravenhage.

Buitenzorg, im Mai 1921.

Erklärung der Buchstaben:
L. Leiden, 's Rijks Herbarium.
B. Herbarium in Buitenzorg.

Myxomycetes.

(Exosporeae.)

Fam. **Ceratiomyxaceae.**

1. Ceratiomyxa fructiculosa (Müll.) Macbr. 173, 186 p. 51 (C. mucida Schröter = C. fruticulosa Macbr. = Ceratium filiforme B. et Br.) Java; 43 p. 56 (Ceratium hydnoideum A. et S.) Java; 142 p. 308 (Ceratium hydnoides A. et S.) Java; 107 p. 8 (Ceratium Hydnoides Fr.) Java; B.
2. C. fruticulosa (Müll.) Macbr. var. flexuosa Lister 86 p. 154 (C. mucida P.) Schröter var. filiformis B. et Br.) Java.

(Endosporeae.)

Fam. **Physaraceae.**

3. Badhamia hyalina (Pers.) Berk. 173, 186 p. 51 Java.
4. B. fasciculata Rost. 173 Java.
5. B. macrocarpa Rost. 86 p. 154 Java; 173, 186 p. 51 Java; B.
6. B. papaveracea Berk. et Rav. 186 p. 51 Java.
7. Physarum bogoriense Rac. 173, 186 p. 52 Java.
8. Ph. cinereum Pers. 43 p. 56 Java; 47 p. 68 Krakatau; 86 p. 154 Java; 107 p. 11 (Didymium cinereum Fr.) Java; 142 p. 308 (Didymium cinereum Fr.) Java; 173, 186 p. 52 Java; 221 Port. Timor.
9. Ph. citrinum Schum. 173, 186 p. 51 Java.
10. Ph. compactum List. 86 p. 156 Java; 173 Java; B.
11. Ph. compressum Alb. et Schw. 173, 186, p. 51 (Ph. candidum Rost.) Java; B.
12. Ph. didermoides Rost. 173 Java. B.
13. Ph. fasciculatum Jungh. 107 p. 11 Fig. 8 Java; 142 p. 308 Java.
14. Ph. flavicomum Berk. 86 p. 154 (Ph. Berkeleyi Rost.) Java; 173, 186 p. 52 (Ph. Berkeleyi Rost) Java; B.
15. Ph. globuliferum Pers. 86 p. 155 Java; 173, 186 p. 51 Java.
16. Ph. Gulielmae Penzig 173 Java.
17. Ph. inaequale Peck 86 p. 157 Java; 173 Java.
18. Ph. javanicum Rac. 86 p. 156 Java; 173, 186 p. 53 Java; B.
19. Ph. lateritium (Berk. et Rav.) Morg. 186 p. 52 (Didymium croceoflavum B. et Br.) Java; B.

19a. Ph. leucopus Rost. 141 p. 266 Holl. Neu-Guinea.

20. Ph. melleum (Berk. et Br.) Massee 86 p. 155 Java; 173, 186 p. 51 Java; B.
21. Ph. nucleatum Rex 86 p. 155 Java; 173, 186 p. 51 Java; B.
22. Ph. nutans Pers. 33 p. 242 Java; 86 p. 154 Java; 173, 186 p. 52-53 Java; B.
23. Ph. penetrale Rex 173 Java.
24. Ph. polycephalum Schwein. 173, 186 p. 52 (Ph. polymorphum Rost.) Java; B.
25. Ph. psittacinum Ditm. 173, 186 p. 52 Java.
26. Ph. pulcherrimum Berk. et Rav. 173, 186 p. 51 Java.
27. Ph. pulchripes Peck 186 p. 51 (Ph. Petersii B. et C. var. intermedium Rost.) Java.
28. Ph. pusillum (Grev.) List. 173 (Ph. calidris List.) Java.
29. Physarum sinuosum (Bull.) Weinm. 85 p. 157. (Ph. bivalve Pers.) Java; 173, 186 p. 52 (Ph. bivalve Pers.) Java.
30. Ph. tenerum Rex 86 p. 157 Java.
31. Ph. virescens Ditm. 86 p. 155 Java.
32. Ph. viride Pers. 86 p. 155 (Ph. luteum Lister) Java; 173, 186 p. 53 Java; B.
33. Fuligo cinerea (Schw.) Morg. 173 (F. ellipsospora Lister) Java.

34. F. septica Gmelin 86 p. 159 Java; 109 p. 368 (Aethalium flavum(Java; 173, 186 p. 53 Java.
35. Erionema aureum Penzig 173 Java; B.
36. Trichamphora pezizoidea Jungh. 86 p. 159 Java; 107 p. 12—13 Fig. 9 Java; 173 Java; 142 p. 308 Java.
37. Physarella oblonga (Berk. et Curt.) Morg. 173, 186 p. 51 (Ph. mirabilis Peck) Java; B.
38. Cienkowskia reticulata (Alb. et Schw.) Rost. 173, 186 p. 51 Java.
39. Craterium aureum (Schum.) Rost. 86 p. 159 (Cr. mutabile Fr.) Java; 173, 186 p. 53 (Cr. mutabile Fr.) Java.
40. C. leucocephalum Ditm. 86 p. 159 Java; 173, 186 p. 53 Java; B.
41. C. minutum (Leers) Fr. 86 p. 159 (Cr. pedunculatum Trentepohl) Java; 173, 186 p. 53 (Cr. pedunculatum Trentepohl) Java.
42. Diderma effusum (Schw.) Morg. 86 p. 160 (Chondrioderma reticulatum Rost.) Java; 173, 186 p. 54 (Ch. reticulatum Rost.) Java; B.
43. D. hemisphaericum (Bull.) Hornem. 173, 186 p. 54 (Chondrioderma Michelii Rost.) Java.
44. D. rugosum (Rex) Macbr. 86 p. 160 (Chondrioderma rugosum Rex) Java.
45. D. subdictyospermum (Rost.) List. 86 p. 159 (Chondrioderma subdictyospermum (Rost.) Lister) Java; 173, 186 p. 54 (Ch. subd.) Java; B.
46. D. testaceum Pers. 173, 186 p. 54 (Chondrioderma testaceum Rost.) Java.
47. Physarina echinocephala v. Höhn. 86 p. 158 Fig. 33 Java.
48. Diachaea leucopoda (D. C.) Rost. 86 p. 160 Java; B.
49. Diachaeella bulbillosa (Berk. et Br.) v. Höhn. 86 p. 163 Fig. 34 Java; 173, 186 p. 54 (Diachaea splendens Rac.; D. bulbillosa (Berk et Br.) Lister) Java; B.

Fam. **Didymiaceae.**

50. Didymium Clavus (Alb. et Schw.) Rost. 86 p. 160 Java; 173. 186 p. 54 Java; B.
51. D. melanospermum (Pers.) Macbr. 86 p. 161 (D. farinaceum Schrad. β minus Lister; D. farin. Schrad. α genuinum Lister) Java; 173, 186 p. 54 (D. farin. Schrad.) Java; 239 p. 85 (D. far. Schrad.) Java.
52. D. nigripes Fr. 86 p. 161 (α genuinum Lister) Java; 173, 186 p. 54 (D. microcarpon (Fr.) Rost.) Java; B.
53. D. squamulosum Fr. 86 p. 160 (D. effusum Link) Java; 173 (D. eff. Link), 186 p. 54 (D. macrospermum Rost.) Java; B.
54. Lepidoderma tigrinum Rost. 173, 186 p. 54 Java.
55. Lepidodermopsis leoninus (Berk. et Br.) v. Höhn. 86 p. 165 Fig. 35 Java.

Fam. **Stemonitaceae.**

56. Stemonitis ferruginea Ehrenb. 173, 186 p. 55 (St. Smithii Macbr.) Java; B.
57. S. fusca Roth 40 p. 117 Eng. Neu-Guinea; 43 p. 56 Java; 129a p. 166 (St. fasciculata D.C.) Java; 144 (St. fasciculata Pers.) Java; 163 p. 120 (St. fasc. Pers.) Java; 173, 186 p. 55 Java; 221 Port. Timor; 273 (St. fasc. Pers.) Java; B.
58. S. herbatica Peck 86 p. 166 Java; 173 Java.
59. S. splendens Rost. 173, 186 p. 55 Java; B.
60. S. subclavata Zoll. et Mor. 271 p. 377 Java; 67a p. 301 Java.
61. Comatricha longa Peck 173, 186 p. 54 Java; B.
62. C. nigra (Pers.) Schröt. 173 (C. obtusata Preuss), 186 p. 54 (C. Frieseana (de Bary) Rost.) Java.
63. C. pulchella Rost. 173, 186 p. 54 (C. Persoonii Rost.) Java; B.
64. C. typhoides Rost. 86 p. 167 (*α* genuina Lister) Java; 173 Java; 186 p. 54 (C. typhina (Roth) Rost.) Java; B.
65. Enerthenema papillatum (Pers.) Rost. 173, 186 p. 55 (E. elegans Bowman) Java.
66. Lamproderma Arcyrionema Rost. 173, 186 p. 54 Java.
67. L. columbinum (Pers.) Rost. 173, 186 p. 54 (L. physaroides Rost.) Java.
68. L. scintillans (Berk. et Br.) Morg. 173 (L. irideum Massee) Java.

Fam. **Heterodermaceae.**

69. Cribraria argillacea Pers. 173, 186 p. 55 Java.
70. C. intricata Schrad. 173 Java.
71. C. microcarpa (Schrad.) Pers. 186 p. 55 Java.
72. C. purpurea Schrad. 173, 186 p. 55 Java.
73. C. rufa Rost. 144 (Cr. fulva Schrad.) Java; 273 (Cr. fulva Schr.) Java.
74. C. tenella Schrad. 173 Java.
75. Dictydium cancellatum (Batsch) Macbr. 173 (D. umbilicatum Schrad.) Java; 186 p. 55 (D. cernuum (Pers.) Nees) Java; B.

Fam. **Liceaceae.**

76. Licea flexuosa Pers. 173, 186 p. 55 Java.
76a. L. iricolor Zoll. 67a. p. 300 Java.

Fam. **Tubulinaceae.**

77. Tubifera ferruginosa Gmelin 144 (Licea iricolor Zoll. et Mor.) Java; 173 (Tubulina fragiformis Pers.) Java; 271 p. 376 (Licea iricolor Zoll. et Mor.) Java; 273 (Licea iricolor Zoll. et Mor.) Java.
78. T. stipitata (Berk. et Rav.) Macbr. 173, 186 p. 55 (Tubulina stipitata Rost.) Java; B.
79. Alwisia Bombarda Berk. et Br. 60 p. 13-14 Taf. I Fig. 11-14 Sumatra.

Fam. **Lycogalaceae.**

80. Lycogala Epidendrum Fr. 173 (L. miniatum Pers.) Java; 186 p. 55 Java; 273 Java, Sumatra.

Fam. **Trichiaceae.**

81. Trichia Botrytis Pers. 173 Java; 186 p. 55 (Tr. fragilis (Sow.) Rost. Java.
82. T. decipiens (Pers.) Macbr. 173 (Tr. fallax Pers.) Java.
83. T. flavoginea Pers. 173 Java; 186 p. 55 (Tr. chrysosperma (Bull.) D.C.) Java; B.
84. T. verrucosa Berk. 173 Java.
85. Hemitrichia clavata (Pers.) Rost. 43 p. 56 (Hemiarcyria clavata Pers.) Java; 173 Java; 186 p. 55 (Hemiarcyria clavata Pers.) Java; B.
86. H. Karstenii Lister 173 Java; 186 p. 55 (Hemiarcyria Karstenii Lister) Java.
87. H. Serpula (Scop.) Rost. 43 p. 56 (Hemiarcyria S.) Java; 86 p. 167 Java; 173 Java; 186 p. 55 (Hemiarcyria S.) Java; B.

Fam. **Arcyriaceae.**

88. Arcyria cinerea (Bull.) Pers. 173, 186 p. 55 (A. albida Pers.) Java; B.
89. A. Denudata (L.) Sheldon 37 p. 13 (A punica Pers.) Sarawak; 43 p. 56 (A. pun. Pers.) Java; 86 p. 167 (A. pun. Pers.) Java; 107 p. 13 Fig. 10 (A. pun. Pers.) Java; 142 p 309 (A. pun. Pers.) Java; 173. 186 p. 55 (A. pun. Pers.) Java; 219 p. 246 Deutsch Neu-Guinea; B.
90. A. ferruginea Saut. 173, 186 p. 55 Java; B.
91. A. incarnata Pers. 173, 186 p. 55 Java; B.
92. A. insignis Kalchbr. et Cooke 173 Java.
93. A. nutans (Bull.) Grev. 173 (A. flava Pers.) Java; B.
94. A. viridis Zoll et Mor. 271 p. 377 Java; 273 Java; 67 a. p. 300—301 Java.
95. Perichaena depressa Lib. 86 p. 167 Java; 173. 186 p. 55 Java.
96. P. microspora Penz 173 Java.
97. P. vermicularis Rost. 173 (P. variabilis Rost.) Java; 186 p. 55 (P. reticulata (Berk. et Br.) Rost.) Java.

P. pallidum Ces. 37 p. 12 (Stegasma pallidum Ces.) Sarawak.

Enteromyxa cerebrina Ces. 37 p. 13 Sarawak.

Fungi.

Phycomycetes.

OOMYCETES.

Chytridineae.

Fam. **Synchytriaceae.**

1. Woroninella Psophocarpi Rac. 188 p. 195—198 Java; 190 Java; B.
2. W. vulcanica Rac. 190 Java; B.

Fam. **Rhizidiaceae.**

3. Rhizophidium fungicolum Zimmerm. 265 p. 149—151 Fig. 2 Java.

Fam. **Chytridiaceae.**

3a. Protascus colorans v. d. Wolk 252 p. 153—157 1 Taf. Java.

Fam. **Oochytriaceae.**

4. Polyphagus Nowakowskii Rac. 190 Java.

Saprolegniineae.

Fam. **Pythiaceae.**

5. Pythium complens Fischer 190 Java; B.
6. P. De Baryanum Hesse 105 Java.
7. P. palmivorum Butl. 113 p. 625 Java.
8. P. vexans de Bary (?) 190 Java.

Peronosporineae.

Fam. **Albuginaceae.**

9. Cystopus Bliti (Biv.) de Bary 190 Java.
10. C. Convolvulacearum Otth. 190 Java.
11. C. Ipomeae panduratae (Schw.) St. et Sw.; B.

Fam. **Peronosporaceae.**

12. Phytophthora colocasiae Rac. 6 p. 485 Java; 119 p. 161 Java; 190 Java; B.
13. P. Faberi Maubl. 205 Java; 206 p. 27 Fig. VI Java; 208 p. 6 Java; 65 Java.
14. P. infestans (Mont.) de Bary 250 p. 4 Java.
15. P. nicotiana v. Breda de Haan 3 p. 94 Java; 27 Sumatra; 28, 29 p. 417—465 Sumatra; 100 p. 14—19 Sumatra; 105 Java; 136 Java; 190 Java; B.
16. P. omnivora de Bary (?) 115 p. 317 Java; 262 p. 141—143 Fig. 12—14 Java.

16a. Sclerospora graminicola (Sacc.) Schröter 5 p. 484 Java.

16b. S. javanica v. d. Palm 159 Java.

17. Plasmopara viticola (Berk. et Curt.) Berl. et de Toni 30 p. 286—287 Java.
18. Peronospora cubensis Berk. et Curt. var. atra Zimmerm. 265 p. 148 Fig. 1 Java.
19. P. Maydis Rac. 179 Java; 190 Java; 210 p. 4 Pl. I-V Java; B.

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Mucorineae.

Fam. **Mucoraceae.**

20. Mucor amylomyces Rouxii Eykm. 48 p. 101 Java; 235 (Mucor Rouxii) p. 318, 324 Fig. 11 Java.
21. M. dubius Wehmer 235 p. 318 Fig. 15—23 Java.
22. M. javanicus Wehmer 234 p. 612 Fig. 1—15. Java.
23. M. Mucedo L. 108 p. 286 Java.

24. Chlamydomucor Oryzae Went et Prinsen Geerligs 234 p. 611 Java; 235 p. 318 Fig. 12—14 Java; 242 p. 14 Tafel II Fig. 11—17 Java
25. Rhizopus Artocarpi Rac. 190 Java; B.
26. Rhizopus nigricans Ehrenb. 129 p 608 (Ascophora mucedo Tode) Borneo.
27. R. Oryzae Went. 67*a* p. 290, 320, 323 Java; 234 p. 612 Java; 235 p. 313 Fig. 1—10 Java; 242 p. 16 T. II Fig. 18—19, T. III Fig. 20—24, T. IV Fig. 25—34 Java.

Xenomyces ochraceus Ces. 37 p. 26 Taf. II Sarawak.

Fam. **Piptocephalidaceae.**

28. Syncephalastrum javanicum Rac. 192 Java.

Entomophthorineae.

Fam. **Entomophthoraceae.**

29. Empusa Gryllii (Fres.) Now. 190 Java.

Ascomycetes.

Fam. **Ascoideaceae.**

30. Ascoidea saprolegnioides Holterm. 96 p. 18—23 Taf. II Fig. 1—25, Java.
31. Oscarbrefeldia pellucida Holterm. 96 p. 6—18 Taf. I Fig. 1—9 G. Java.
32. Conidiascus paradoxus Holterm. 96 p. 23—27 Taf. III Fig. 1—12, Java.

Fam. **Protomycetaceae.**

33. Protomyces Theae Zimm. 262 p. 140—141 Fig. 11 Java; 264 p. 51 Java.
34. Endogenella borneensis v. Höhnel 94 p. 42 Fig. 5 Borneo.

Fam. **Monascaceae.**

35. Monascus purpureus Went 248 Java.

Fam. **Saccharomycetaceae.**

36. Saccharomyces apiculatus Rees 182 3 Fig. Java.
37. S. Vordermannii Went et Prinsen Geerligs 242 p. 11 Taf. I Fig. 5—10, Taf. II Fig. 10, Java.
38. Atichia Treubii v. Höhnel 95 p. 19—23 Java.
39. A. Millardetii Rac. 87 p. 61 Java; 95 p. 21 Java; 192 Java; 222 (Atichiopsis Solmsii B. Wagner) Java.

Fam. **Endomycetaceae.**

40. Endomyces javanensis Klöcker 114 p. 267—272 3 Fig. Java.

Fam. **Exoascaceae.**

41. Taphrina Bussei 64.
42. T. Cissi Zoll. 271 p. 390 Java; 273 Java; 67a p. 300 Java.

43. Elsinoe Antidesmae Rac. 190 Java; B.
44. E. Canavalliae Rac. 190 Java; B.
45. E. Menispermacearum Rac. 190 Java; B.
46. E. viticola Rac. 190 Java; B.

Fam. **Geoglossaceae.**

47. Geoglossum bogoriense Henn. et Nym. 76 p. 36 Java.
48. G. hirsutum Pers. 76 p. 36 Java; 83 p. 65 (G. Hirsutum Fr.) Java; 144 Java; 163 p. 120 Java; 271 p. 382 Java; 273 Java; 67a p. 303 Java.
49. G. ophioglossoides (L.) Sacc. 166 p. 196 Java.
50. G. Walteri Berk. 76 p. (75) 173 Java.
51. Leotia lubrica (Scop.) Pers. 76 p. 36 Java.
52. Cudoniella javanica Hennings 76 p. (75) 173 Taf. V. Fig. 22 Java; B.
53. C. javanica Hennings. subsp. microspora Penz. et Sacc. 175 p. 201 Java; 176 p. 66—67 Java.

Fam. **Helvellaceae.**

54. Morchella deliciosa Fr. 107 p. 31 Java; 142 p. 311 Java.
55. Verpa indigocola Oud. 157 p. 89 Java; L.
56. Helvella lacunosa Afzel. subsp. javanica Penz. et Sacc. 175 p. 201 Java; 176 Taf. XLIV Fig. 1, Java.

Fam. **Rhizinaceae.**

57. Psilopezia Fleischeriani P. Henn. et E. Nym. 76 p. 35 Java; 86 p. 124 Java.

Fam. **Pezizaceae.**

58. Arenaea javanica Penz. et Sacc. 86 p. 117 Java; 175 p. 211 Java; 176 p. 77. Taf. LI Fig. 3 Java; B.
59. A. macrospora Penz. et Sacc. 175 p. 212 Java; 176 p. 77 Taf. LI Fig. 4 Java; B.
60. Lachnea appendiculata Henn. 76 p. 35 Java.
61. L. episphaeria Henn. 83 p. 64 Java.
62. L. Fleischeriana Henn. 76 p. 35 Java.
63. L. folliculata v. Höhnel 86 p. 112 Java.
64. L. longiseta Penz. et Sacc. 175 p. 203 Java; 176 p. 68 Taf. XLV Fig. 2 Java.
65. L. lurida Henn. et Nym. 76 p. 35 Java.
    L. macrothelis Syd. 219 p. 258 D. Neu-Guinea.
66. L. scutellata L. 107 (Peziza scutellata) Java; 142 p. 311 (Peziza Scutellata) Java; 273 (Peziza scutellata) Java.
67. L. stictica (Berk. et Curt.) Sacc. 175 p. 203 Java; B.
68. Plicaria pustulata (Hedw.) Fuckel 271 p. 383 (Peziza pustulata Pers.) Java; 67a p. 303 (Peziza pustulata Pers.) Java.

68a P. citrina (Penz. et Sacc.) 175 p. 202 (Peziza citrina Penz. et Sacc.) Java; 176 p. 67. Taf. XLIV Fig. 2 (Peziza citrina Penz. et Sacc.) Java; B.
69. Humaria pangerangensis P. Henn. et E. Nym. 76 p. 34 Java.
70. H. subzandbayensis Henn. et Nym. 76 p. 34 Java.
71. H. umbilicata Penz. et Sacc. 175 p. 202 Java; 176 p. 68 Taf. XLV Fig. 1 Java; B.
72. H. xylariicola Henn. et Nym. 76 p. 34 (73) 171 Taf. V Fig. 20 Java.
73. H. zandbayensis Henn. et Nym. 76 p. 34 Java.
74. Barlaeina albo-caerulescens Penz. et Sacc. 175 p. 202 Java; 176 p. 67–68 Taf. XLIV Fig. 4 Java; B.
75. B. convexella (Karst.) Sacc. subsp. tjibodensis Penz. et Sacc. 175 p. 202 Java; 176 p. 97 Taf. XLIV Fig. 3 Java.
76. B. discoidea (Henn. et Nym.) 76 p. 33 (Barlaea discoidea Henn. et Nym.) Java.
77. Aleuria aurantia (Müll.) Fuckel 142 p. 311 (Peziza aurantia Pers.) Java; 107 p. 30 (Peziza aurantia Pers.) Java.
78. A. aurantia var. stipitata Zoll. et Mor. 271 p. 384 (Peziza aur. var. stipitata) Java; 67a p. 303 (Peziza aur. var. stipitata Zoll.) Java.
79. A. helvola Jungh. 107 p. 30 Fig. 17 (Peziza helvola Jungh.) Java; 142 p. 311 (P helvola Jungh.) Java.
80. A. javanica (Nees) 128 p. 614 (Peziza javanica Nees) Java.
81. A. Nymaniana Henn. 76 p. 34 Java.
82. A. (?) sparassiformis Henn. 76 p. (74) 172 Taf. V Fig. 20 Java; 175 p. 202 (Peziza sparassiformis) Java; B.
83. A. tjibodensis Henn. 76 p. (74) 172 Java.
84. A. zandbaiensis Henn et. Nym. 76 p. (74) 172 Java.
84a. Pustularia Sundaica v. Höhnel 86 p. 121 Java.
85. Aleurina crinita (Bull.) Sacc. 157 p. 212 Java.
86. A. subapiculata v. Höhnel 86 p. 123 Java.
87. A. substipitata Henn et Nym. 76 p. 35 Java.
88. A. substipitata Henn. et Nym. var. pleuropoda Penz. et Sacc. 175 p. 212 Java; 176 p. 77 Taf. LII Fig. 1 Java; B.

Fam. **Ascobolaceae.**

89. Saccobolus Kerverni Boud. 175 p. 218 Java; B.
Ascobolus cenangioides Ces. 37 p. 11 Sarawak.
90. A. latus Penz. et Sacc. 175 p. 218 Java; 176 p. 84 Taf. LVI Fig. 3 Java.
A. sarawacensis Ces. 44 p. 74 Sarawak.

Fam. **Helotiaceae.**

91. Sarcoscypha javensis v. Höhnel 86 p. 121 Java.
91a. S. obliqua Zoll. 67a p. 303 (Peziza obliqua Zoll.) Java; 144 (Peziza obliqua Zoll.) Java; 271 p. 383 (Peziza obliqua Zoll et Mor.) Java; 273 (Peziza obliqua Zoll.) Java.

Pilocratera Hindsii (Berk.) Henn. 40 p. 118 (Peziza (Trichoscypha) Hindisii) Englisch Neu-Guinea; 74 p. 509 Deutsch Neu-Guinea; 71 p. 39 Deutsch Neu-Guinea; 214 p. 60 Deutsch Neu-Guinea.

92. P. tricholoma (Mont.) Hennings 74 p. 509 Deutsch Neu-Guinea; 76 p. (73) 171 Java; 144 (Peziza tricholoma Mont.) Java; 273 (Peziza tricholoma) Java.
93. P. tricholoma (Mont.) Hennings var. celebica Hennings 76 p 33 Taf. I Fig. 19 Java.
94. Rutstroemina firma (Pers.) Karst 273 (Peziza firma Pers.) Java.
95. Trichopeziza citrino-alba Penz. et Sacc. 175 p. 208 Java; 176 p. 74 Taf. IL Fig. 3 Java; B.
96. T. melleorufa Penz. et Sacc. 175 p 208 Java; 176 p. 74 Taf. IL Fig. 4 Java; B.
97. T. porioides Penz. et Sacc. 175 p. 209 Java; 176 p. 74 Taf. L Fig. 1 Java; B.
98. Dasyscypha albidula Penz. et Sacc. 175 p. 210 Java; 176 p. 75–76 Taf. L Fig. 1 Java; B
99. D. isabellina Penz. et Sacc. 175 p. 210 Java; 176 p. 76 Taf. LI Fig. 1 Java; B.
100. D. javanica Penz. et Sacc. 175 p. 209 Java; 176 p. 75 Java; B.
101. D. javanica Penz. et Sacc. var. citrinula Penz. et Sacc. 175 p. 209 Java; 176 p. 75 Taf. L Fig. 2 Java
102. D. ochroleuca Penz. et Sacc. 175 p. 210 Java; 176 p. 75 Taf. L Fig. 3 Java; B.

D. simillima Berk. et Br. 37 p. 11 Sarawak.

103. D. tubiformis Henn. et Nym. 76 p. 31 Java.
104. D. Warburgiana Hennings 70 p. 226 Taf. VIII Fig. 5 Java; 76 p. 32 Java; 197 p. 12 Fig. 4a-d Java.
105. D. Willkommii Hartig 107 p. 29 (Peziza calycina Fr.) Java; 142 p 311 (Peziza calycina Schum. var.) Java.
106. Dasyscyphella dificillima v. Höhnel 86 p. 119 Java.
107. Phaeomacropus Fleischerianus Hennings 76 p. (74); 72 Taf. V Fig. 21 Java; 175 p. 201 Java.
108. Lanzia reticulata Penz. et Sacc. 175 p. 213 Java; 176 p. 79 Taf. LIII Fig. 1 Java.
109. Helotiella aurea Penz. et Sacc. 175 p. 213 Java; 176 p. 78 Taf LII Fig. 3 Java; B.
110. H. myoleuca Penz. et Sacc. 175 p. 212 Java; 176 p. 78 Taf. LII Fig. 2 Java; B.

Pseudothis cingulata Syd. 219 p. 257 Deutsch Neu-Guinea.

111. Solenopeziza mellina Penz. et Sacc. 175 p. 213 Java; 176 p. 79 Taf. LII Fig. 4 Java; B.
112. Erinella albida Penz. et Sacc. 175 p. 218 Java; 176 p. 83—84 Taf. LVI Fig. 2 Java; B.

113. E. albo-flaveola Penz. et Sacc. 175 p. 217 Java; 176 p. 83 Taf. LV Fig. 3 Java; B.
114. E. bogoriensis Henn. et Nym. 76 p. 33 Java.
115. E. bogoriensis Henn. et Nym. subsp. candida Penz. et Sacc 175 p. 216 Java; 176 p. 82 Taf. LIV. Fig. 4 Java; B.
116. E. byssacea Henn. et Nym. 76 p. 32 Java.
117. E. carneola Penz. et Sacc. 175 p. 217 Java; 176 p. 83 Taf. LV Fig. 4 Java; B.
118. E. citrino-alba Penz. et Sacc. 175 p. 216 Java; 176 p. 82 -83 Taf. LV Fig. 2 Java; B.
119. E. disciformis Henn. et Nym. 76 p. 32 Java.
120. E. javanica Henn. et Nym. 76 p. 32 Java.
121. E. javensis v. Höhnel 86 p. 120 Java.
122. E. marginata Pat. 163 p. 120 Java.
123. E. nivea Penz. et Sacc. 175 p. 216 Java; 176 p. 82 Taf. LV Fig. 1 Java; B.
124. E. tjibodensis Henn. et Nym. 76 p. 32 Java.
125. E. tomentella Penz. et Sacc. 175 p. 217 Java; 176 p. 83 Taf. LVI Fig. 1 Java; B.
126. Hymenoscypha Asplenii Rac. 190 Java.
127. Davincia Helios Penz. et Sacc. 175 p. 215 Java; 176 p. 81 Taf LVI Fig. 2 Java; B.
128. D. (Davincella) tenella Penz. et Sacc. 175 p. 215 Java; 176 p. 81—82 Taf. LIV Fig. 3 Java; B.
129. Podobelonium citrino-album Penz. et Sacc. 175 p. 214 Java; 176 p. 79—80 Taf. LIII Fig. 2 Java; B.

Belonium Brauseanum Lindau 130 p. 327 Deutsch Neu-Guinea.

130. Belonioscypha basitricha (Sacc.) v. Höhnel 86 p. 111 Java; 76 p. 31 (Belonidium fructigenum Henn.) Java; 175 p. 215 (Belonidium albo-cereum Penz. et Sacc.) Java; 176 p. 80 Taf. LIV Fig. 1 (Belonidium albo-cereum Penz. et Sacc.) Java; B.
131. Helotium aurantio-rubrum Bres. forma. 33 p. 241 Java.
132. H. citrinum (Hedw.) var. lenticulare (Bull.) 107 p. 29 (Peziza lenticularis Bull.) Java; 142 p. 311 (Peziza lenticularis) Java.

H. epiphylla Pers. 37 p. 11 Sarawak.

133. H. (Calycella) griseolum v. Höhnel 86 p. 114 Java.
134. H. javanicum Penz. et Sacc. 175 p. 203 Java; 176 p. 68—69 Taf. XLV Fig. 4 Java; B.
135. H. javanicum Penz. et Sacc. β Fleischerianum 175 p. 204 Java; 176 p. 69 Java.
136. H. javanicum Penz. et Sacc. γ expallens 175 p. 204 Java; 176 p. 69 Java.
137. H. obconicum v. Höhnel 86 p. 115 Fig. 25 Java.

138. H. pteridophilum Penz. et Sacc. 175 p. 204 Java; 176 p. 69 Taf. XLVI Fig. 1 Java; B.
139. H. subserotinum Henn. et Nym. 76 p. 33 Java; 175 p. 203 Java; 176 p. 68 Taf. XLV Fig. 3 Java; B.

Phialea aurantiaca Syd. 219 p. 257 Deutsch Neu-Guinea.

140. P. glaucescens Penz. et Sacc. 175 p. 204 Java; 176 p. 69 Taf. XLVI Fig. 2 Java; B.
141. P. Panici v. Höhnel 93 p. 67 Java.
142. Pezizella armenica Penz. et Sacc. 175 p. 207 Java; 176 p. 72 Taf. XLVIII Fig. 2 Java; B.
143. P. avellanea Penz. et Sacc. 175 p. 207 Java; 176 p. 72—73 Taf. XLVIII Fig. 4 Java; B.
144. P. avellanea Penz. et Sacc. var. macrospora Penz. et Sacc. 175 p. 207 Java; 176 p. 73 Java.
145. P. convexella Penz. et Sacc. 175 p. 206 Java; 176 p. 71 Taf. XLVII Fig. 4 Java; B.
146. P. Elasticae Koord. 118 p. 300 Java; 119 p. 161 Java.
147. P. epibrya Penz. et Sacc. 175 p. 208 Java; 176 p. 73 Taf. IL Fig. 1 Java; B.
148. P. glaberrima Penz. et Sacc. 175 p. 205 Java; 176 p. 71 Taf. XLVII Fig. 2 Java.
149. P. isabellino-rufa Penz. et Sacc. 175 p. 206 Java; 176 p. 72 Taf. XLVIII Fig. 1 Java; B.
150. P. subceracella Penz. et Sacc. 175 p. 206 Java; 176 p. 71 Taf. XLVII Fig. 3 Java.
151. P. tjibodensis Penz. et Sacc. 175 p. 207 Java; 176 p. 72 Taf. XLVIII Fig. 3 Java; B.
152. Pseudohelotium Microcenangium Penz. et Sacc. 175 p. 208 Java; 176 p. 73 Taf. IL Fig 2 Java; B.

Fam. **Mollisiaceae.**

153. Tapezia anomala Pers. 128 p. 614 (Peziza (Tapezia) anomala) Sumatra.
154. Mollisia cinerea (Batsch) Karst. 175 p. 204 Java.
155. M. obconica Penz. et Sacc. 175 p. 205 Java; 176 p. 70 Taf. XLVI Fig. 4 Java; B.
156. M. orbilioides Penz. et Sacc. 175 p. 205 Java; 176 p. 70 Taf. XLVI Fig. 1 Java; B.
157. M. viridulo-mellea Penz. et Sacc. 175 p. 205 Java; 176 p. 70 Taf. XLVI Fig. 3 Java; B.
158. M. vulgaris Fr. 43 p. 56 (Peziza (Mollisia) vulgaris) Java.
159. Dermatina javanica v. Höhnel 89 p. 59 Java.
160. Belonidium glauco-fuligineum Penz. et Sacc. 175 p. 214 Java; 176 p. 80 Taf. LIII Fig. 4 Java; B.
161. B. javense v. Höhnel 86 p. 108 Java.

162. B. tabacinum Penz. et Sacc. 175 p. 214 Java; 176 p. 80 Taf. LIII Fig. 3 Java; B.
163. Lasiobelonium globulare v. Höhnel 86 p. 113 Java.
164. Pirottaea versicolor Penz. et Sacc. 175 p. 210 Java; 176 p. 76 Taf. LI Fig. 2 Java; B.
165. Pyrenopeziza Araliae v. Höhnel 93 p. 66 Java.
Orbilia calochroa Syd. 219 p. 258 Deutsch Neu-Guinea.
166. O. macrospora Penz. et Sacc. 175 p. 220 Java; 176 p. 86 Taf. LVII Fig. 4 Java; B.
167. O. Myristicae Hennings 79 p. 144 Java.
168. O. neglecta Penz. et Sacc. 175 p. 219 Java; 176 p. 85 Taf. LVII Fig. 2 Java; B.
169. O. sinuosa Penz. et Sacc. 175 p. 219 Java; 176 p. 85—86 Taf. LVII Fig. 3 Java; B.

Fam. **Patellariaceae.**

170. Patinella chlorosplenioides Penz. et Sacc. 175 p. 223 Java; 176 p. 88–89 Taf. LIX Fig. 2 Java; B.
171. P. phyllogena Penz. et Sacc. 175 p. 223 Java; 176 p. 89 Taf. LIX Fig. 3 Java; B.
172. Karschia Elasticae Koord. 118 p. 300 Java; 120 p. 162 Java.
173. K. nigerrima Sacc. subsp. globulifera Penz. et Sacc. 175 p. 223 Java; 176 p. 89 Taf. LIX Fig. 4 Java; B.
174. K. tjibodensis Penz. et Sacc. 175 p. 223 Java; 176 p. 89 Taf. LX Fig. 1 Java; B.
175. Melaspilea myriostigma Nyl. 154 p. 134 Java.
176. Patellaria callispora Penz. et Sacc. 175 p. 224 Java; 176 p. 90 Taf. LX Fig. 2 Java; B.
P. Tympanis ? 37 p. 11 Sarawak.
177. Lecideopsella gelatinosa v. Höhnel 88 p. 74 Java.
178. Midotis Heinricherii Bres. 33 p. 242 Java; 134 p. 951 Java.

Fam. **Cenangiaceae.**

179. Cenangium (Encoela) helvolum (Jungh.) Sacc. 86 p. 103 Fig. 24 Java; 163 p. 120 (Helotium helvolum Pat.) Java; 192 (Helotium helvolum Jungh.) Java.
180. C. (Cenangina) Inocarpi (P. Henn.) v. Höhnel 71 p. 40 (Helotium Inocarpi Henn.) Neu-Guinea; 86 p. 69 Java; 214 p. 61 (Helotium Inocarpi Henn.) Deutsch Neu-Guinea.
181. C. luteo-griseum v. Höhnel 86 p. 105 Java.
182. C. paradoxum Jungh. 107 p. 27 Fig. 14 Java; 142 p. 310 Java.
183. Tryblidiella rufula (Spreng.) Sacc. 76 p. 28 Java.
Tympanis vermicularis 37 p. 11-12 Sarawak.
184. Bulgaria celebica Henn. 76 p. 30 Taf. I Fig. 17 Celebes.

185. B. javanica (Rehm) Henn. 70 p. 226 Taf. VIII Fig. 6 (Sarcosoma javanica Rehm) Celebes; 76 p. 30 Celebes.
186. B. Sarasini Henn. 76 p. 30 Taf. I Fig. 18 Celebes.
187. Stamnaria Equiseti (Hoffm.) Sacc. 190 Java.
188. Agyriopsis javanica v. Höhnel 88 p. 71 Java.
189. Coryne javanica Penz. et Sacc. 175 p. 219 Java; 176 p. 85 Taf. LVII Fig. 1 Java; B.
190. C. meliolicola (Henn.) v. Höhnel 74 p. 509 (Calloria meliolicola Henn.) Neu-Guinea; 86 p. 106 Java; 214 p. 61 (Calloria meliolicola Henn.) Deutsch Neu-Guinea.
191. C. sarcoides (Jacq.) Tul. var. javanica 76 p. 30 Java.
192. Haematomyxa bambusina Rac. 192 Java.
193. Asterocalyx mirabilis v. Höhnel 93 p. 64 Taf. II 6 Fig. Java.
194 Discomycella tjibodensis v. Höhnel 93 p. 63 Fig. 5 Java.
195. Sorokina bogoriensis Henn. et Nym. 76 p. 31 Java.
196. S. insignis Penz. et Sacc. 175 p. 218 Java; 176 p. 84—85 Taf. LVI Fig. 4 Java; B.
197. S. tjibodensis Henn. et Nym. 76 p 31 Java.

Fam. **Myriangiaceae.**

198. Molleriella Sirih Zimm. 262 p. 140 Fig. 10 Java.
199. Myriangiella orbicularis Zimm. 265 p. 183—184 Fig. 4 Java.
200. Myriangium Duriaei Mont. et Berk. 261 p. 876 Fig. 5 Java.
201. M. yunnanense (Pat.) Rac. 192 Java.
202. Anhella tristis Rac. 190 Java; B.

Fam. **Stictidaceae.**

203. Stegia nitens Penz. et Sacc. 175 p. 221 Java; 176 p. 87 Taf. LVIII Fig. 2 Java; B.
204. Stictis arundinacea Pers. 175 p. 220 Java; B.
204a. S. graphidea Pers. 176a p. 178 Rawak.
205. S. pallidula Sacc. 175 p. 220 Java; B.
205a. S. variolosa Pers. 176a p. 178 Rawak.
206. Delpontia pulchella Penz. et Sacc. 175 p. 221 Java; 176 p. 86—87 Taf. LVIII Fig. 1 Java; B.
207. Eupropolis Asteriscus Henn. et Nym. 76 p. 29 Java.

Fam. **Tryblidiaceae.**

208. Tryblidaria roseo-atra v. Höhnel 86 p. 73 Java.
209. Tryblidium Elasticae Koord. 118 p. 300 Java; 119 p. 162 Fig. 5 Java.

Fam. **Phacidiaceae.**

Phacidium dentatum Fr. 37 p. 13 Sarawak.
210. Cryptomyces pongamiae Berk. et Br. 190 Java; B.
211. C. Rhododendri Rac. 190 Java.

212. Coccomyces dentatus (K. et Schm.) Sacc. 175 p. 222 Java; 176 p. 88 Java; B.
213. C. dentatus (K. et Schm.) Sacc. var. hexagonus Penz. et Sacc. 175 p. 222 Java; 176 p. 88 Taf. LVIII Fig. 4 Java.
214. C. Rhododendri Rac. 190 Java.
215. C. tjibodensis Rac. 190 Java.
216. Criella Aceris-laurini (Pat.) Sacc. et Syd. 76 p. 28 (72) 170 Taf. V Fig. 15 (Nymanomyces Aceris-laurini Henn.) Java; 89 p. 55 (Synglonium insigne Penz et Sacc.) Java; 163 p. 121 (Rhytisma acerinum f. Aceris Laurini Pat.) Java; 171 p. 527 (Synglonium insigne Penz. et Sacc) Java; 175 p. 221 Java; 176 p. 62–63 Taf. XLI Fig. 4 (Synglonium insigne Penz. et Sacc.) Java; 190 (Nymanomyces Aceris laurini Henn.) Java; B.
217. C. Lonicerae Henn. et Nym. 76 p. (73) 171 Java; 175 p. 221 Java; B.
218. Irydiania filicis Rac. 190 Java.
Lauterbachiella pteridis Henn. 74 p. 508 Neu-Guinea; 214 p. 61 Deutsch Neu- Guinea.
219. Rhytisma acerinum (Pers.) Fr. 197a p. 3-4 Fig. 3-4 Java; 76 p. 29 Java.
R. Berkeleyanum Ces. 37 p. 25 Sarawak.
220. Phaeorhytisma Lonicerae Henn. et Nym. 76 p. 29 Java.
221. Moutoniella polita Penz. et Sacc. 93 p. 58 Fig. 4 Java; 175 p. 22 Java; 176 p. 87—88 Taf. LVIII Fig. 3 Java; B.
222. Clithris arundinacea Penz. et Sacc. 175 p. 222 Java; 176 p. 88 Taf. LIX Fig. 1 Java; B.
223. Marchalia notulata Cooke et Massee 47 p. 68 Krakatau.

Fam. **Hypodermataceae.**

224. Erikssonia pulchella Penz. et Sacc. 170 p. 526 Java; 176 p. 62 Taf. XLI Fig. 3 Java; B.
225. Mendogia bambusina Rac. 190 Java.
226. Hypoderma Aceris Henn 70 p. 223—224 Java; 76 p. 28 Java.
227. Rhythidhysterium guaraniticum Speg. 175 p. 528 Java; 176 p. 64 Java.
228 R. guaraniticum Speg. subsp. javanicum Penz. et Sacc. 175 p. 528 Java; 176 p. 64 Taf. XLII Fig. 3 Java.
229. Lophodermium Calami Henn. et Nym. 76 p. (72) 170 Taf. V Fig. 16 Java.
230. L. Canangae Henn. et Nym. 76 p. (72) 170 Java.
231. L. hypodermoides Penz. et Sacc. 170 p. 529 Java; 176 p. 65 Taf. XLIII Fig. 2 Java; B.
232 L. javanicum Penz. et Sacc. 93 p. 57 Java; 170 p. 529 Java; 176 p. 65 Java; B.
233. L. javanicum Penz. et Sacc. var. Pandani Penz. et Sacc. 170 p. 529 Java; 176 p. 65 Taf. XLIII Fig. 3 Java.

234. L. maculare (Fr.) de Not. 170 p. 529 Java; B.
235. L. Mangiferae Koord. 119 p. 163 Textfig. 6 Java.
236. L. Raapianum Penz. et Sacc. 170 p. 529—530 Java; 176 p. 65—66 Taf. XLIII Fig. 4 Java; B.
237. L. tjibodense Henn. et Nym. 76 p. 28 Java.
238. Schizacrospermum filiforme Henn. et Nym. 76 p. (72) 170 Taf. V Fig. 17 Java.

Fam. **Hysteriacea.**

239. Auglographum-atromaculans Penz. et Sacc. 170 p. 527 Java; 176 p. 63 Taf. XLII Fig. 1 Java; B.
A. spilomoide Ces 37 p. 14 Sarawak.
A. maximum Massee 139 p. 177 Br. Neu-Guinea.
240 Morenoella breviuscula (Penz. et Sacc.) v. Höhnel 89 p. 54 Java; 170 p. 527—528 (Lembosia breviuscula Penz. et Sacc) Java; 176 p. 63 Taf. XLII Fig. 2 (Lembosia breviuscula Penz. et Sacc.) Java.
241. M. Calami Rac. 190 Java.
242. M. gedeana Rac. 190 Java; B.
243. M gedeana Rac. var. Calamicola Rac. 190 Java.
244. M. Marattiae Rac. 190 Java; B.
245. M. Nephrodii Rac. 190 Java; B.
246. Lembosia decalvans Pat. 163 p. 122 Java.
247. L. decalvans Pat. var. cocculi Pat. 163 p. 122 Java.
248. L. Dendrochili Lév. 128 p. 618 Java.
249. L. diffusa Wint. 170 p. 527—528 Java; 176 p. 63 Java; B.
250. L. javanica (Pat.) Rac. 190 Java; B.
251. L. longissima Rac. 47 p. 68 Krakatau; 190 Java.
252. L. serpens Pat. 163 p. 122 Java.
253. Hysterostomella Alsophilae Rac. 190 Java; B.
254. Parmularia discoidea Rac. 190 Java; B.
255. P. javanica Pat. 163 p. 122 (Schneepia javanica Pat.) Java; B.
256. Hysterium Alstoniae Tassi 269 p. 23 Molukken.
H. Berkeleyanum Ces. 37 p. 13 Sarawak.
257. H. flexuosum Schwein. 107 p. 15 Java; (Varietas) 142 p. 309.
258. H. Lineare Fries 271 p. 379 Java; 67a p. 301 Java.
259. H. pulicare Pers. 76 p. (72) 170 Java.
H. serpens Ces. 37 p. 13 Sarawak.
260. Aldona stella-nigra Rac. 175 p. 231 Java; 176 p. 64 Taf. XLII Fig. 4 Java; 190 Java; B.
261. Hysterographum Elasticae Koord. 118 p. 301 Java; 119 p. 163—164 Textfig. 7 Java.
262. H. olegomerum Penz. et Sacc. 170 p. 528 Java; 176 p. 64 Taf. XLIII Fig. 1 Java; B.

Fam. **Acrospermaceae.**

263. Acrospermum foliicolum Berk. 170 p. 530 Java; 176 p. 66 Java; B.

Fam. **Eutuberaceae.**

264. Hydnobolitus javanicus v. Höhnel 85 p. 36 Java.
265. Sphaerocreas javanicum v. Höhnel 85 p. 30 Fig. 1 Java.

Fam. **Aspergillaceae.**

266. Eurotium margaritaceum Lév. 273 Java.

Fam. **Onygenaceae.**

267. Onygenopsis Engleriana Henn. 83 p. 64 Fig. 1—4 Java.

Fam. **Trichocomaceae.**

268. Trichocoma paradoxa Jungh. 37 p. 13 Borneo; 56 p. 68 Java; 76. p. 28 Java; 107 p. 9 Fig. 7 Java; 142 p. 308 Java.

Pyrenomycetes.

Fam. **Perisporiaceae.**

269. Meliola amphitricha Fr. 37 p. 25 Sarawak; 76 p. (62) 160 Java; 109 p. 619 Borneo; 129a p. 265 Java; 163 p. 121 Java.
270. M. Anacardii Zimm. 265 p. 151—152 Fig. 3 Java.
271. M. cladotricha Lév. 129a p. 266 Borneo; 251 p. 25 Neu-Guinea.
272. M. curviseta Rac. 190 Java.
273. M. Hercules Henn. 86 p. 42 Java.
274. M. heteroseta v. Höhnel 88 p. 13 Java.
275. M. octospora Cooke 89 p. 9 Java; 170 p. 389 Java; 176 p. 2—3 Taf. II Fig. 1 Java; B.
276. M. pennata v. Höhnel 87 p. 45 Java.
277. M. pectinata v. Höhnel 89 p. 14 Java.
278. M. quadrispina Rac. 190 Java.
279. M. substenospora v. Höhnel 86 p. 43 Java.
280. M. Willoughtyae Zimm. 269 p. 23 Java.
Meliolina arborescens Syd. 219 p. 254 Deutsch Neu-Guinea.
281. Phymatosphaeria Calami Rac. 190 Java; B.
281a. Leptomeliola javensis v. Höhnel 95b p. 25 Java.
282. Schiffnerula mirabilis v. Höhnel 87 p. 56 Java.
283. Wentiomyces javanicus Koord. 118 p. 301 Java; 119 p. 168—170 Textfig. 9 Java.
284. Dimerosporium Balladynae Rac. 192 Java.
285. D. hamatum Penz. et Sacc. 170 p. 389 Java; 176 p. 2 Taf. I Fig. 3 Java; B.
286. D. insignis Cooke 42 p. 70 Ternate.
287. D. minutissimum v. Höhnel 87 p. 45 Java.

288. D. occultum Rac 190 Java.
289. D pangerangensis Henn. et Nym. 76 p. (61) 159 Java.
290. Balladyna Gardeniae Rac. 190 p. 6 Java.
B. Ledermannii Syd. 219 p. 254 Deutsch Neu-Guinea.
291. B. Medinillae Rac. 192 Java.
292. Porodiella Aceris Rac. 190 Java.
293. P. Mucunae Rac. 190 Java.
294. P. perisporioides (Berk. et Curt.) Sp. 190 Java.
295. P. perisporioides (Berk. et Curt.) Sp. subsp. asperula Penz. et Sacc. 170 p. 389 Java; 176 p. 2 Taf. L Fig. 4 Java; B.
296. Alina Jasmini Rac. 192 Java.
297. Zukalia parasitans v. Höhnel 88 p. 22 Java.
298. Perisporium (Perisporiella) Myristicae Henn. 79 p. 141 Java.
299. Hyaloderma Uredinis Rac. 192 Java.
300. Antennaria setosa Zimm. 265 p. 151 Java; 267 p. 45 Fig. 31 Java; 268 Java.
301. A. scoriadea Berk. 175 p 243 Java; B.
302. Limacina graminella v. Höhnel 95a p 143 Java.
303. Capnodium Castilloae (Zimm.) Bern. 18 Java; 269 p. 14 (Antennaria Castilloae Zimm.) Java.
304. C. Guajavae Bern. 18 Java.
305. C. indicum Bern. 17 Java; 20 Java.
306. C. javanicum Zimm. 18 Java; 265 p. 151 Java; 267 p. 42—44 Fig. 26—29 Java; 268 Java.
307. C. stellatum Bern.=p.p. Atichia Millardetii 18 Java; 95 p. 21—22 Java.
308. C. stysanophorum Penz. et Sacc. 170 p. 390 Java; 176 p. 3 Taf. II Fig. 2 Java; B.
309. Myriococcum? spinuligerum Penz. et Sacc. 170 p. 388—389 Java; 176 p. 1—2 Taf. 1 Fig. 2 Java; B.

Fam. **Mycrothyriaceae.**

310. Asterula Bruinsmai Koord. 118 p. 301 Java; 119 p. 171 Taf. XI Fig. 17 Textfig. 10 Java.
311. A. cornicularifórmis Hennings 76 p. (62) 160 Java.
312. Myriocopron affine Penz. et Sacc. 171 p. 525 Java; 176 p. 60 Taf. XL Fig. 4 Java; B.
313. M. Euryae Rac. 192 Java.
314. M. millepunctatum Penz. et Sacc. 171 p. 524—525 Java; 176 p. 60 Taf. XL Fig. 3 Java; B.
315. Clypeolum Hymenophylli Henn. et Nym. 76 p. (62) 16 Java.
316. C. Talaumae Rac. 190 Java.
317. C. vulgare Rac. 192 Java.
318. Trichothyrium densum Rac. 192 Java.
319. T. jungermannioides Rac. 192 Java.

320. Mycrothyrium microscopicum Desm. 163 p. 121 Java.
321. Mycrothyriella malacoderma v. Höhnel 88 p. 17 Java.
321a. Asterina alpina Rac. 190 Java.
321b. A. azareae Lév. 144 Java; 273 Java.
321c. A. consimilis v. Höhnel 87 p. 50 Java.
322. A. Cyathearum Rac. 88 p. 11 (Halbania cyathearum Rac.) Java; 190 Java; B.
322a. A. Lawsoniae Hennings 76 p. (61) 159 Java.
323. A. Loranthacearum Rehm. var. javensis v. Höhnel 95a p. 140 Java.
324. A. punctiformis Lév. 129a p. 267 Java.
324a. A. reptans Berk. et Curt. 163 p. 121—122 Java.
324b. A. sponiae Rac. 190 Java.
325. A. subglobulifera v. Höhnel 95a p. 141 Java.
326. Asterinella tjibodensis v. Höhnel 95a p. 142 Java.
327. Myxasterina Strychni v. Höhnel 87 p. 59 Java.
328. Seynesia calamicola Henn. et Nym. 76 p. (62) 160 Java.
329. S. coccoidea Hennings 79 p. 141 Java.
330. Trichopeltis montana Rac. 192 Java.
331. Micropeltis alangalang Rac. 190 Java.
332. M. applanata Mont. 129a p. 265 Timor? Java.
333. M. bambusina v. Höhnel 86 p. 48 Java.
334. M. biseptata v. Höhnel 88 p. 12 Java.
335. M. bogoriensis v. Höhnel 93 p. 8 Java.
336. M. leucoptera Penz. et Sacc. 171 p. 525 Java; 176 p. 61 Taf. XLI Fig. 1 Java; B.
337. M. macropelta Penz. et Sacc. 171 p. 525 Java; 176 p. 61 Taf. XLI Fig. 2 Java; B.
338. M. Sirie Rac. 192 Java
339. Scutellum javanicum v. Höhnel 93 p. 10 Java.
340. Scolecopeltis salacensis Rac. 190 Java.
340a. S. triviale Rac. 192 Java.
341. Scolecopeltopsis aeruginea (Zimm.) v. Höhnel 86 p. 41 Fig. 14 Java; 265 p. 183 (Scolecopeltis aeruginea Zimm.) Java.
342. S. transiens v. Höhnel 88 p. 30 Java.
343. Polystomella sordidula (Lév.) Rac. 192 Java.
344. Heterochlamys javanica Rac. 192 Java.
Pemphidium coffeinum Ces. 37 p. 25 Sarawak.
345. Limacinula samoensis v. Höhnel 88 p. 37 Java.
346. Celtidia duplicispora Janse 102 Java; 95a p. 137 Java.

Fam. **Hypocreaceae.**

347. Hyponectria Pandani Rac. 190 Java; B.
348. H. Raciborskii Penz. et Sacc. 171 p. 506 Java; 176 p. 39 Taf. XXVII Fig. 3 Java; B.

349. Micronectria Pterocarpi Rac. 119 p. 176 Java; 190 Java.
350. Byssonectria delicatula Penz. et Sacc. 171 p. 507—508 Java; 176 p. 39 Taf. XXVII Fig. 2 Java; B.
351. B. javanica (Penz. et Sacc.) v. Höhnel 88 p. 23 Java; 170 p. 388 (Cryptothecium javanicum Penz. et Sacc.) Java; 176 p. 1 Taf. I Fig. 1 (Cryptothecium javanicum Penz. et Sacc.) Java; B. (Cryptothecium javanicum).
352. Pseudotrype Rehmiana Henn. et Nym. 76 p. (66) 164 Java.
353. Chilonectria (Chilostilbe) javanica Penz et Sacc. 171 p. 508—509 Java; 176 p. 40 Taf. XXVIII Fig. 1 Java.
354. C. macrospora Penz. et Sacc. 171 p. 508 Java; 176 p. 39 Taf. XXVII Fig. 4 Java; B.
355. Penicilliopsis clavariaeformis Solms Laubach 76 p. 27 Java; 163 p. 124 Taf. XXV Fig. 16—20 Java; 217 p. 53—72 Taf. VI Fig. 1—20, Taf. VII Fig. 23—27 Java; B.
356. Hypomyces australiensis v. Höhnel 86 p. 20 Java.
H. chromaticus Berk? 37 p. 19 Sarawak.
357. H. javanicus v. Höhnel 86 p. 19 Java.
358. Torrubiella luteorostrata Zimm. 261 p. 872 Java.
359. T. sericicola v. Höhnel 86 p. 28 Java.
360. Melanospora Wentii Koord. 118 p. 301 Java; 119 p. 172 Textfig. 11 Java.
361. Neoskofitzia termitum v. Höhnel 85 p. 14 Java.
362. Ciliospora gelatinosa Zimm. 265 p. 217 Fig. 5 Java.
363. Nectriella aurantia Penz. et Sacc. 171 p. 506—507 Java; 176 p. 38 Taf. XXVI Fig. 3 Java; B.
364. N. pallidula Penz. et Sacc. 76 p. (63) 161 Java; 171 p. 507 Java; 176 p. 38 Taf. XXVI Fig. 4 Java; B.
365. N. rufo-fusca Penz. et Sacc. 171 p. 507 Java; 176 p. 38—39 Taf. XXVII Fig. 1 Java; B.
366. N. (Notarisiella) setulosa Penz. et Sacc. 171 p. 507 Java; B.
367. Pseudonectria tornata v. Höhnel 89 p. 10 Java; 232 p. 46 Java.
368. Nectria (Dialonectria) agaricicola Hennings 76 p. (63) 161 Java.
369. N. (Lasionectria) albo-fimbriata Penz. et Sacc. 171 p. 513 Java; 176 p. 44—45 Taf. XXXI Fig. 2 Java; B.
370. N. (Dialonectria) amaniana Zimm. 197 p. 31 Java.
371. N. (Dialonectria) ambigua Penz. et Sacc. 171 p. 511 Java; 176 p. 42 Java; B.
372. N. (Dialonectria) ambigua Penz. et Sacc. var. pallens Penz. et Sacc. 171 p. 511 Java; 176 p. 42 Taf. XXIX Fig. 3 Java.
373. N. (Dialonectria) arundinella Penz. et Sacc. 171 p. 512 Java; 176 p. 43 Taf. XXX Fig. 3 Java.
374. N. bainii Massee 115 p. 317 Java.
375. N. (Dialonectria) bogoriensis Hennings 83 p. 62 Java;

376. N. (Dialonectria) calamicola Henn. et Nym. 76 p. (63) 161 Java.
377. N. callispore v Höhnel 86 p. 21—23 Fig. 6 Java.
378. N. (Dialonectria) carneo-flavida Penz. et Sacc. 171 p. 511—512 Java; 176 p. 43 Taf. XXX Fig. 1 Java; B.
379. N. (Lasionectria) Cinchonae Zimmerm 197 p 46 Fig. 23 a-b Java.
380. N. (Hyphonectria) cinereo-papillata Henn. et Nym. 76 p. (63) 161 Java.
381. N. cinnabarina (Fr.) 7 p. 652 Java; 128 p. 617 (Sphaeria (caespitosa) cinnabarina Fr.) Java.
382. N. (Eunectria) coccinea (Pers) Fr. 37 p. 15 Sarawak; 109 p. 388 (Sphaeria coccinea Pers.) Java; 128 p. 617 (Sphaeria (caespitosa) coccinea) Java; 171 p. 510 Java; B.
383. N. (Lepidonectria) coffeicola Zimmerm. 179 p. 39 Fig. 22a-c Java; 262 p. 103—105 Fig. 4—5 (Nectria (Dialonectria) coffeicola Zimm.) Java; 264 p. 863 Java; 266 p. 478 Java; 267 p. 73 Java; 268 Java; 269 p. 20 Java.
384. N. (Lepidonectria) coffeicola Zimm. var. ochroleuca Zimm. 262 p. 105 Java.
N. conferta Syd. 219 p. 255—256 Deutsch Neu-Guinea.
385. N. (Eunectria) coronata Penz. et Sacc. 86 p. 24 Fig. 7 Java; 171 p. 510 Java; 176 p. 41 Taf. XXVIII Fig. 4 Java; B
386. N. diversispora Bern. 20 Java.
387. N. (Hyphonectria) dolichospora Penz. et Sacc. 171 p. 513 Java; 176 p. 45 Taf. XXXI Fig. 3 Java; B.
388. N. discophora Mnt. 262 p. 105 Fig. 6 (Nectria striatispora Zimm.) Java.
389 N. (Lasionectria) Elasticae Koorders 118 p. 301 Java; 119 p. 174 Abb. 12 Java.
390. N. (Eunectria) eustoma Penz. et Sacc. 89 p. 14 Java; 171 p. 509—510 Java; 176 p. 41 Taf. XXVIII Fig. 3 Java. B.
391. N. (Dialonectria) episphaeria (Tode) Fries 76 p. (63) 161 Java; 83 p. 65 Java; 128 p. 617 (Sphaeria (denudata) episphaeria Tode) Java.
N. (Dialonectria) episphaeria (Tode) Fr. var. Kretzschmariae Henn. 71 p. 38 Neu-Guinea; 214 p. 61 Deutsch Neu-Guinea.
392. Nectria (Dialonectria) episphaerioides Penz. et Sacc. 171 p. 511 Java; 176 p. 42 Taf. XXIX Fig. 2 Java; B.
393. N. (Lasionectria) fructicola Henn. et Nym. 76 p. (64) 162 Java; 265 p. 182 Java (Nectria fructicola Zimm.); 267 p. 73 (Nectria fructicola Zimm.) Java; 268 Nectria fructicola Zimm.) Java.
394. N. (Lepidonectria) gedehensis Hennings 76 p. (64) 162 Java.
395. N. (Dialonectria) gigantospora Zimm. 116 Java; 118 p. 301 Java; 119 p. 175 Java; 269 p. 15 Java.
N. haematococca Berk. et Br. 37 p. 15 Sarawak.

396. N. hypocreoides Berk. et Cooke 89 p. 11 Java.
396a. N. (Hyponectria) hypoxantha Penz. et Sacc. 171 p. 513—514 Java; 176 p. 45 Taf. XXXI Fig. 4 Java; B.
397. N. (Lepidonectria) Henningsii Rehm. 76 p. (64) 162 Java.
398. N. (Hyponectria) leucotricha Penz. et. Sacc. 171 p. 512—513 Java; 176 p. 44 Taf. XXXI Fig. 1 Java; B.
399. N. lucida v. Höhnel 86 p. 24 Java.
400. N. luteo-coccinea v. Höhnel 86 p. 25 Java.
401. N. ignia v. Höhnel 89 p. 15 Java; 232 p. 46—47 Fig. 8 Java.
402. N. monilifera Berk. et Br. 93 p. 20 Java.
403. N. (Dialonectria) nigella Penz. et Sacc. 171 p. 512 Java; 176 p. 43 Taf. XXX Fig. 2 Java; B.
404. N. (Hyphonectria) Nymaniana Henn. 76 p. (63) 161 Java.
405. N. peristomata Zimm. 91 p. 182 Java; 266 p. 478 Fig. 7 Java.
406. N. Peziza (Tode) Fr. 107 p. 16 (Sphaeria Peziza) Java; 142 p. 310 (Sphaeria (Denudata) Peziza Pers.) Java.
407. N. (Eunectria) radians Penz. et Sacc. 171 p. 510—511 Java; 176 p. 41—42 Taf. XXIX Fig. 1 Java; B.
408. N. raripila Penz. et Sacc. 175 p. 228 Java; 176 p. 46 Taf. XXXII Fig. 2 Java; B.
409. N. sanguinea Fries 43 p. 56 Java.
410. N. sinopica Fr. 128 p. 617 (Sphaeria (Caespitosa) sinopica Fr.) Java.
411. N. subcoccinea Sacc. et Ellis 261 p. 872 Fig. I (Nectria (Eunectria) coccidophthora Zimm.) Java.
412. N. (Lepidonectria) subfurfuracea Henn. et Nym. 76 p. (64) 162 Java; 86 p. 23—24 Java.
413. N. (Lepidonectria) subsquamuligera Henn. et Nym. 76 p. (64) 162 Java.
414. N. tetraspora Pat. 163 p. 24 Java.
415. N. tjibodensis Penz. et Sacc. 18 (Nectria bogoriensis Bern.) Java; 76 p. (63) 161 (Nectria (Eunectria) tjibodensis Henn.) Java; 76 p. (62) 160 (Nectria flocculenta Henn. et Nym.) Java; 79 p. 141—142 (Nectria (Lasionectria) vanillicola Henn.) Java; 83 p. 62 (Nectria (Lepidonectria) coccineo-ochracea Henn.) Java; 91 p. 181 (Nectria vanillicola Henn.) Java; 91 p. 182 (Nectria vanillae Zimm.) Java; 91 p. 182 (Nectria bogoriensis Bern.) Java; 93 p. 22 (Nectria (Lasionectria) luteopilosa Zimm.) Java; 171 p 512 Java; 176 p. 43—44 Taf. XXX Fig. 4 Java; 190 (Nectria bogoriensis Bern.) Java; 232 p. 99 Java; 265 p. 182 (Nectria (Lasionectria) luteopilosa Zimm.) Java; 266 p. 470—474 Fig. 1—3 Textfig. 2—4 (Nectria (Lasionectria) Vanillae Zimm.) Java; 267 p. 73 (Nectria luteopilosa Zimm.) Java; 268 (Nectria luteopilosa Zimm.) Java; B.
416. N. (Dialonectria) trachycarpa Penz. et Sacc. 171 p. 511 Java; 176 p. 42—43 Taf. XXIX Fig. 4 Java; B.

417. N. umbilicata Henn. 89 p. 15 (Nectria (Dialonectria) oculata v. Höhnel) Java.
418. N. (Eunectria) vulgaris Speg. 171 p. 510 Java; 264 p. 803 (Nectria vulgaris Oud?) Java; B.
419. N. (Cryphonectria) xanthostroma Penz. et Sacc. 171 p. 514 Java; 176 p. 45—46 Taf. XXXII Fig. 1 Java; B.
419a. Sphaerostilbe cinerascens Hennings 83 p. 63 Java.
419b. S. repens Berk. et Br. 25 p. 10; 206 p. 20 Java.
420. Ijuhya vitrea Starb. var. javanica v. Höhnel 93 p. 42 Taf. I, 5 Fig. Java.
421. Treubiomyces pulcherrimus v. Höhnel 88 p. 25 Fig. 1 Java.
422. Neohenningsia stellatula Koord. 118 p. 301 Java; 119 p. 164—165 Textfig. 8 Java.
423. Lisea Parlatoriae Zimmerm. 261 p. 873 Java.
424. Letendraea atrata Penz. et Sacc. 86 p. 64 Java; 171 p. 514 Java; 176 p. 46 Taf. XXXII Fig. 3 Java; B.
425. Calonectria aurantiella Penz. et Sacc. 171 p. 515 Java; 176 p. 47 Taf. XXXIII Fig. 2 Java; B.
426. C. Calami Hennings 76 p. (65) 163 Java.
427. C. collarioides Penz. et Sacc. 171 p. 515 Java; 176 p. 47 Taf. XXXIII Fig. 1 Java; B.
428. C. coffeae Zimmerm. 262 p. 139 Java.
429. C. cremea Zimmerm. 262 p. 140 Fig. 9 Java.
430. C. discophora v. Höhnel et Weese 232 p. 68—69 Java.
431. C. effugiens Penz. et Sacc. 171 p. 515 Java; 176 p. 47 Taf. XXXII Fig. 4 Java; B.
432. C. gigaspora (Henn.) Weese. 76 p. (63) 161 (Nectria (Dialonectria) gigaspora Henn.) Java.
433. C. sulcata Starbäck 86 p. 27 (Calonectria Meliae Zimm.) Java; 262 p. 106 Fig. 7—8 (Calonectria Meliae Zimmerm.) Java; 264 p. 803 (Calonectria Meliae Zimmerm.) Java.
434. Gibberella Engleriana Hennings 83 p. 63 Java.
435. Paranectria imperconspicua v. Höhnel 87 p. 10 Java.
436. Pleonectria coffeicola Zimm. 265 p. 183 Java.
437. Pleogibberella calamia Berl. et Vogl. 141 p. 265 Holländisch Neu-Guinea.
438. Ophionectria? anomala Rac. 191 Java.
439. O. calamicola Henn. et Nym. 76 p. 25 (65) 163 Java; 233 p. 38 Java.
440. O. coccicola (Ell. und Ev.) Berl. und Vogl. 261 p. 874 Fig. 2 Java.
441. O. conica Penz. et Sacc. 171 p. 516 Java; 176 p. 48 Taf. XXXIII Fig. 3 Java; B.
442. O. foliicola Zimm. 265 p. 128 Java.
443. O. (Ophiostilbe) Trichiae Penz. et Sacc. 171 p. 516—517 Java; 176 p. 48—49 Taf. XXXIII Fig. 4 Java; B.

444. O. trichospora (Berk. et Br.) Sacc. 171 p. 516 Java; 176 p. 48 Java; B.
445. Barya montana Rac. 191 Java.
446. B. salaccensis Rac. 191 Java.
447. Megalonectria Pseudotricha (Schum.) Speg. 76 (65) 163 Java; 83 p. 65 Java; 118 p. 202 Java; 119 p. 176 Fig. IV Abb. 13 Java; 163 p. 124 Java; 171 p. 516 Java; 176 p. 48 Java; 221 Timor; B.
448. Hypocrea alutacea (Pers.) Ces. et De Not. 107 p. 24 (Sphaeria alutacea Pers.) Java; 271 p. 379 (Sphaeria alutacea Pers.) Java. 67a p. 301—302 (Sphaeria alutacea Pers.) Java.
449. H. aurantia Hennings 76 p. (65) 163 Java.
450. H. bogoriensis Hennings 83 p. 63 Java.
451. H. (Euhypocrea) Catoptron Berk. et. Br. 171 p. 520 Java; 176 p. 52 Taf. XXXV Fig. 3 Java.
452. H. (Homalocrea) discolor Penz. et Sacc. 171 p. 520 Java; 176 p. 52—53 Taf. XXXVI Fig. 1 Java.
453. Hypocrea enteromorpha (Lév.) Sacc. 128 p. 616 (Sphaeria (pulvinata) enteromorpha) Java.
454. H. (Euhypocrea) fulva Penz. et Sacc. 171 p. 520 Java; 176 p. 52 Taf. XXXV Fig. 4 Java; B.
455. H. gelatinosa (Tode) Fries 76 p. (65) 163 Java; 171 p. 519 Java; 176 p. 51 Java.
456. H. gelatinosa (Tode) Fries var. oligotheca Penz. et Sacc. 171 p. 519 Java; 176 p. 51—52 Taf. XXXV Fig. 1 Java; B.
H. gelatinosa (Tode) Fries var. umbrina Fr. 37 p. 14 Sarawak.
457. H. (Euhypocrea) lenta (Tode) Berk. 171 p. 519 Java; B.
458. H. Lixii Pat. 162 p. 138 Neu-Guinea.
459. H. (Clitoniella) longicolla Penz. et Sacc. 171 p. 520—521 Java; 176 p. 53 Taf. XXXVI Fig. 2 Java; B.
H. novo-guinensis Hennings 74 p. 507 Deutsch Neu-Guinea; 214 p. 62 Deutsch Neu-Guinea.
460. H. Nymani Hennings 76 p. (65) 163 Java; 86 p. 26 Java.
461. H. pulchella Penz. et Sacc. 170 p. 229 Java; 176 p. 53 Taf. XXXVI Fig. 3 Java; B.
H. rhytidospora Ces. 37 p. 14 Taf. III Sarawak.
462. H. rufa (Pers.) Fr. form. hypoxylonicola Hennings 83 p. 65 Java.
463. H. saccharalis Rac. 190 Java.
464. H. Sacchari Went. 230 Java; 237 Java.
465. H. (Euhypocrea) Sclerodermatis Penz. et Sacc. 171 p. 519—520 Java; 176 p. 52 Taf. XXXV Fig. 2 Java; B.
466. H. Solmsii Ed. Fischer 55 p. 129—143 Taf. XVII Fig. 1—5. Taf. XVIII Fig. 6—10 Java; 76 p. (65) 163 Java.
467. H. Solmsii Ed. Fischer var. corniformis 33 p. 241 Java.
468. Thümenella javanica Penz. et Sacc. 171 p. 519 Java; 176 p. 51 Taf. XXXIV Fig. 4 Java; B.

469. Podocrea Cordyceps Penz. et Sacc. 175 p. 229 Java; 176 p. 53—54 Taf. XXXVI Fig. 4 Java
470. Corallomyces brachysporus Penz. et Sacc. 175 p. 228 Java; 176 p. 54 Taf. XXXVII Fig. 1 Java; B.
471. Broomella Ichnaspidis Zimmerm. 261 p. 874—875 Fig. 3 Java.
472. B. Ichnaspidis Zimmerm. var. major 261 p. 875 Java.
473. Epichloë Bambusae Pat. 2 p. 202 Java; 163 p. 125—126 Java; 171 p. 521 Java; 176 p. 55 Taf. XXXVII Fig. 3—4 Java; 191 Java.
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476. E. Warburgiana Magnus 137 Celebes.
477. Tubeufia anceps Penz. et Sacc. 171 p. 518 Java; 176 p. 50 Taf. XXXIV Fig. 3 Java; B.
478. T. coronata Penz. et Sacc. 171 p. 517—518 Java; 176 p. 50 Taf. XXXIV Fig. 2 Java; B.
479. T. javanica Penz. et Sacc. 171 p. 517 Java; 176 p. 49 Taf. XXXIV Fig. 1 Java; B.
480. Hypocrella Amomi Rac. 191 Java.
H. aurea Syd. 219 p. 256 Deutsch Neu-Guinea.
481. H. bispora v. Höhnel 87 p. 14 Java.
482. H. convexa Rac. 191 Java.
483. H. cretacea v. Höhnel 86 p. 37 Java.
484. H. discoidea (Berk. et Br.) Sacc. 33 p. 241 Java; 190 Java.
485. H. Engleriana Koord. 119 p. 177 Abb. 13 Fig. 1—6 Java.
486. H. (?) Gardeniae Hennings 70 p. 223 Java.
487. Hypocrella globosa Rac. 191 Java.
488. H. Grewiae Koord. 119 p. 179 Taf. 13 III Java.
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489. H. Mollii Koord. 119 p. 179 Tab. 13 Fig. 7—12 Java.
490. H. Pernettyae Pat. 163 p. 125 Java.
H. plana Syd. 219 p. 257 Deutsch Neu-Guinea.
H. Sphaeroidea Syd. 219 p. 256 Deutsch Neu-Guinea.
491. H. Raciborskii Zimmerm. 261 p. 875 Fig. 4 Java.
492. H. scutata (Cooke) Sacc. 163 p. 125 Java; 175 p. 229 Java; 176 p. 54-55 Taf. XXXVII Fig. 2 Java.
493. H. Zimmermanniana Hennings 79 p. 142 Java.
494. Konradia secunda Rac. 86 p. 38 Java; 190 (Konradia bambusina Rac.) Java.
495. Lambro insignis Rac. 190 Java.
496. Fleischeria javanica Penz. et Sacc. 175 p. 230 Java; 176 p. 59—60 Taf. XL Fig. 2 Java.
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498. Oomyces javanicus v. Höhnel 86 p. 40 Fig. 13 Java.

499. Cordyceps adpropinguans (Ces.) 37 (Torrubia adpropinguans) p. 14 Sarawak; 86 p. 27 (Torrubia adpropinguans) Java.
500. C. atrobrunnea Penz. et Sacc. 171 p. 522 Java; 176 p. 56 Taf. XXXVIII Fig. 4 Java.
501. C. citrea Penz. et Sacc. 171 p. 523 Java; 176 p. 57 Taf. XXXIX Fig. 2 Java; B.
502. C. coccinea Penz. et Sacc. 76 p. (66) 164 Java; 86 p. 30 Java; 171 p. 524 Java; 176 p. 58—59 Taf. XL Fig. 1 Java; B.
503. C. coccinea Penz. et Sacc. subsp. subochracea Penz. et Sacc. 175 p. 231 Java; 176 p. 59 Java.
504. C. deflectens Penz. et Sacc. 171 p. 522—523 Java; 176 p. 57 Taf. XXXIX Fig. 1 Java.
505. C. depokensis Koord. 121 Java; B.
506. C. flavo-brunnescens Henn. 76 p. (66) 164 Java.
507. C. Fleischeri Penz. et Sacc. 175 p. 238 Java; 176 p. 58 Taf. XXXIX Fig. 4 Java.
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508. C. interrupta v. Höhnel 86 p. 29 Fig. 8 Java.
509. C. javensis Hennings 79 p. 142 Java.
510. C. Koningsbergeri Penz. et Sacc. 171 p. 522 Java; 176 p. 55—56 Taf. XXXVIII Fig. 3 Java; B.
511. C. lachnopoda Penz. et Sacc. 171 p. 521 Java; 176 p. 55 Taf. XXXVIII Fig. 1 Java.
512. C. mitrata Pat. 166 p. 196 Java.
513. C. Mölleri Hennings 86 p. 30 Java.
C. myrmecophila (Ces.) Tul. 37 p. 14 (Torrubia myrmecophila Ces.) Sarawak.
514. C. obtusa Penz. et Sacc. 76 p. (66) 164 Java. 83 p. 75 Java; 171 p. 523 Java; 176 p. 57—58 Taf. XXXIX Fig. 3 Java.
C. ophioglossoides (Ehrh.) Tul. 37 p. 14 (Torrubia ophioglossoides) Sarawak.
515. C. Ouwensii v. Höhnel 86 p. 35 Fig. 12 Java.
516. C. oxycephala Penz. et Sacc. 171 p. 521 Java; 176 p. 55 Taf. XXXVIII Fig. 2 Java.
517. C. podocreoides v. Höhnel 86 p. 34 Fig. 11 Java.
518. C. rhizoidea v. Höhnel 86 p. 33 Fig. 10 Java.
519. C. subochracea Penz. et Sacc. 86 p. 30 Java.
520. C. typhulaeformis Berk. et Cooke 33 p. 241 Java.
521. C. unilateralis (Tul.) var. javanica v. Höhnel 86 p. 31 Java.
522. Zimmermanniella trispora Hennings 79 p. 142 Java.
523. Balansia Claviceps Speg. 191 mit Abb. Java; 188 p. 198—200 Java.
524. B. gigas Rac. 191 mit Abb. Java.
525. B. thanatophora (Lév.) v. Höhnel 91 Java; 128 p. 617 (Dothidea tanatophora Lév.) Java.

526. Ustilaginoidea bogoriensis Rac. 191 Java.
527. U. virens (Cooke) Hennings 76 p. 25 Celebes; 190 (U. Virens (Cooke) Takahashi) Java; 211 p. 323 Java.
528. Creomelanops xanthocephala (B. et S.) v. Höhnel 95a p. 144 Java.

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529. Euryachora Pithecolobii Rac. 93 p. 48 Java; 190 Java.
530. Oxydothis grisea Penz. et Sacc. 171 p. 505 Java; 176 p. 36—37 Taf. XXV Fig. 3 Java; B.
531. O. maculosa Penz. et Sacc. 171 p. 506 Java; 176 p. 37 Taf. XXVI Fig. 1 Java; B.
532. O. nigricans Penz. et Sacc. 171 p. 505—506 Java; 176 p. 37 Taf. XXV Fig. 4 Java; B.
533. Auerswaldia Arengae Rac. 190 Java.
534. Microcyclus Koordersii Henn. 119 p. 183 Abb. 15 Fig. 1—14 Java.
535. Dothidea appendiculata Mont. et Berk. 129a p. 263 Java; 144 Java.
536. D. appendiculosa Mont. et Berk. 9 p. 337 Tab. XV A Java.
537. D. Decaisneana Lév. 128 p. 617 Timor.
538. D. examinans Berk. et Mont. 9 p. 335 Java; 129a p. 263 Java; 144 Java; 273 Java.
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D. oceanica Ces. 37 p. 24 Sarawak.
D. phaselina (Mont.) Berk. 37 p. 24 Sarawak.
539. D. Sambuci Fr. 107 p. 14 Java; 142 p. 309 Java.
540. D. Zollingeri Mont. et Berk. 9 p. 336 Tab. XV B Java; 129a p. 263 Java, Timor; 144 Java; 273 Java.
541. Discodothis Fillicum v. Höhnel. 87 p. 42 Java.
542. Scirrhia bambusina Penz. et Sacc. 171 p. 506 Java; 176 p. 37—38 Taf. XXVI Fig. 2 Java; B.
543. Rhopographus Palmarum v. Höhnel 93 p. 55 Fig. 3 Java.
544. Phyllachora amphidyma Penz. et Sacc. 76 p. (67) 165 Java; 171 p. 504 Java; 176 p. 36 Taf. XXV Fig. 2 Java; B.
545. P. Andropogonis (Schwein.) Karst et Har. 76 p. (67) 165 Java.
546. P. coicis Hennings 190 p. 17 Java; B.
547. P. corallina v. Höhnel 87 p. 33 Java.
548. P. Cynodontis (Sacc.) Niessl. 76 p. (67) 165 Java; B.
549. P. Decaisneana (Lév.) Sacc. 190 p. 17 Java.
550. P. de Vriesei Koord. 119 p. 181 Abb. 14, 7—14 Java.
551. P. Elettariae Pat. 76 p. (67) 165 (Ph. Elettariae (Berk. et Br.) Pat.) Java; 163 p. 123—124 Java; 190 p. 26 Java.
552. P. Fici-albae Koord. 119 p. 183 Java.
553. P. Fici-fulvae Koord. 119 p. 182 Java.

554. P. Fici-obscurae Koord. 119 p. 181 Java.
555. P. Ficium Kessl. 76 p. (67) 165 Java.
556. P. graminis (Pers.) Fuck. 76 (p. 67) 165 Java; 119 p. 183 Java.
P. Kärnbachii Hennings 71 p. 39 Deutsch Neu-Guinea 74 p. 507 Deutsch Neu-Guinea; 214 p. 62 Deutsch Neu-Guinea.
557. P. Laurinearum Rac. 190 p. 35 Java.
558. P. Lecae Koord. 119 p. 182 Java.
559. P. Litseae Koord. 119 p. 181 Abb. 14 Fig. 13—15 Java.
560. P. macrospora Zimmerm. 265 p. 183 Java.
561. P. marmorata Rac. 119 p. 183 Java; 190 p. 26 Java.
562. P. minuta Hennings 79 p. 143 Java.
563. P. Pusaethae v. Höhnel 93 p. 51 Java.
564. P. Sacchari Hennings 79 p. 143 Java.
565. P. Sorghi v. Höhnel 87 p. 32 Java.
566. P. stenospora (Berk. et Br.) 190 p. 27 Java.
567. P. Thanathophora (Lév.) Rac. 191 Abb. (Ophiodonthis thanathophora) Java
568. P. Thwaitesii (Berk.) Sacc. 76 p. (67) 165 Java.
569. P. Tjangkorreh Rac. 190 p. 25 Java.
P. ulcerata Massee 139 p. 177 Br. Neu-Guinea.
570. P. urophylla v. Höhnel 93 p. 52 Fig. 2 Java.
571. Dothidella Elaeocarpi Rac. 190 p. 17 Java.
572. Munkiella melastomata v. Höhnel 88 p. 64 Java.
573. Hyalodothis incrustans Rac. 116 Java; 190 p. 27 Java; 269 p. 16 Java.
574. Telimena Erythrinae Rac. 92 p. 75 Java; 119 p. 180 Abb. 14 1—6 Java; 190 p. 18 Java; 264 p. 803 Java; B.

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575. C. Elasticae Koord. 118 p. 302 Java; 119 p. 185 Abb. 16 Fig. 1—13 Java.
576. C. elatum Kze. 129 p. 608 Java.

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577. Sordaria botryosa Penz. et Sacc. 170 p. 395 Java; 176 p. 9—10 Taf. VII Fig. 2 Java; B.
578. S. caudata (Curr.) Sacc. 170 p. 395 Java; 176 p. 9 Taf. VI Fig. 4 Java; B.
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S. oblectans Ces. 37 p. 23 Sarawak.
S. pachydermatica Ces. 37 p. 22 Sarawak.
579. S. tjibodiana Penz. et Sac. 170 p. 395 Java; 176 p. 9 Taf. VII Fig. 1 Java; B.
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580. Coleroa Elasticae Koord. 118 p. 302 Java; 119 p. 186 Abb. 17 Fig. 1—7 Java.
581. C. Sacchari v. Breda de Haan 229 Java.
582. Trichosphaeria affinis Penz. et Sacc. 170 p. 391 Java; 176 p. 4 Taf. II Fig. 4 Java; B.
583. T. bambusina v. Höhnel 86 p. 62 Java.
584. T. javensis v. Höhnel 86 p. 61 Java.
585. T. proxima Penz. et Sacc. 170 p. 391 Java; 176 p. 4—5 Taf. III Fig. 1 Java; B.
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586. Wallrothiella subiculosa v. Höhnel 93 p. 43 Java.
587. Loranthomyces sordidulus (Lév.) v. Höhnel 128 p. 618 (Dothidea sordidula Lév.) Java; 144 (Dothidea sordidula Lév.) Java; 219 p. 255 Deutsch Neu-Guinea; 273 (Dothidea sordidula Lév.) Java.
588. Neopeckia Bambusae v. Höhnel 86 p. 55 Java.
589. N. diffusa (Schw.) Starb. 170 p. 397 Java; 176 p. 11 Taf. VIII Fig. 4 Java; B.
590. N. pumila Penz. et Sacc. 170 p. 396 Java; 176 p. 11 Taf. VIII Fig. 3 Java.
591. Lasiosphaeria ovina (Pers.) v. Höhn. 88 Java; 171 p. 509 (Heteronectria spirillospora Penz. et Sacc.) Java; 176 p. 40—41 Taf. XXVIII Fig. 2 (Heteronectria spirillospora Penz. et Sacc.) Java; B (Hetronectria spirillospora Penz. et Sacc.).
592. Acanthostigma Bambusae v. Höhnel 86 p. 60 Java.
593. A. nectrioideum Penz. et Sacc. 171 p. 530 Java; 176 p. 18—19 Taf. XIII Fig. 4 Java; B.
594. A. scleracanthoides Penz. et Sacc. 171 p. 404 Java; 176 p. 19 Java; B.
595. A. scleracanthoides Penz. et Sacc. var. Elettariae 171 p. 404 Java; 176 p. 19 Taf. XIV Fig. 1 Java.
596. A. violacea Rac. 192 Java.
597. Chaetosphaeria coelestina v. Höhnel 86 p. 50 Fig. 17 Java.
C. meliolicola Syd. 219 p. 254 Deutsch Neu-Guinuea.
598. C. pusilla Penz. et Sacc. 170 p. 400 Java; 176 p. 15—16 Taf. XI Fig. 3 Java; B.
599. C. Silva-nigra Penz. et Sacc. 170 p. 400 Java; 176 p. 15 Taf. XI Fig. 2 Java.
600. Herpotricha Myriangii Rac. 192 Java.
601. H. Oryzae v. Breda de Haan. 32 Java.
602. Bertia fructicola Hennings 72 p. 233 Celebes. 76 p. 26 Java.
603. B. moriformis (Tode) de Not. 107 p. 17 (Sphaeria moriformis Tode) Java; 128 p. 617 (Sphaeria (denudata) moriformis Tode var. globosa) Java; 142 p. 310 (Sphaeria (denudata) moriformis Tode var.) Java; 170 p. 400 Java; B.

604. B. novo guinensis Hennings 71 p. 37 Neu-Guinea; 214 p. 62 Deutsch Neu-Guinea.
605. B. (Rehmiomyces) oxyspora (Penz. et Sacc.) v. Höhnel 88 p. 56 Java; 170 p. 402 (Winteria oxyspora Penz. et Sacc.) Java; 176 p. 17 Taf. XII Fig. 3 (Winteria oxyspora Penz. et Sacc.) Java.
606. Rinia spectabilis Penz. et Sacc. 175 p. 225 Java; 176 p. 5—6 Taf. III Fig. 3 Java.
607. Rosellinia aquila (Fr.) de Not. 134 p. 951 Java.
608. R. Beccariana Ces. 37 p. 22 Sarawak; 170 p. 393 Java; B.
609. R. (Tassiella) bogoriensis Hennings et Nyman 76 p. (68) 166 Java.
610. R. bothrina Bern. 25 p. 8—10 Java; 158 p. 24 Java.
611. R. bunodes (Berk. et Br.) Sacc. 76 p. (68) 166 Taf. V Fig. 11 Java; 158 p. 24 Java; 170 p. 392 Java; 176 p. 7 Taf. IV Fig. 4 Java.
612. R. (Tassiella) citrino-pulverulenta Henn. et Nym. 76 p. (68) 166 Taf. V Fig. 12 Java.
613. R. Corticium (Schw.) Sacc. 126 p. 617 Java.
614. R. decipiens Penz. et Sacc. 170 p. 393 Java, 176 p. 7 Taf. V Fig. 1 Java; B.
615. R. echinata Massee 116 Java.
616. Rosellinia (Amphisphaerella) eucalypticola Henn. en Nym. 76 p. (68) 166 Java.
617. R. (Amphisphaerella) formosa Penz. et Sacc. 170 p. 393 Java; 176 p. 7—8 Taf. V Fig. 3 Java; B.
618. R. (Amphisphaerella) formosa Penz. et Sacc. var. flavazonata Penz. et Sacc. 170 p. 394 Java; 176 p. 8 Taf. V. Fig. 4 Java; B.
R. hypoxylina Ces. 37 p. 22 Sarawak.
R. ignobilis Ces. 37 p. 22 Sarawak.
619. R. mammiformis (Pers.) Ces. et de Not. 37 p. 22 Sarawak; 170 p. 393 Java; B.
620. R. marginata-clypeata Penz. et Sacc. B.
621. R. necatria Bern. 22 Java.
622. R. (Amphisphaerella) obtusispora Penz. et Sacc. 170 p. 394 Java; 176 p. 8 Taf. VI Fig. 1 Java; B.
R. spadicea Ces. 37 p. 22 Sarawak.
623. Tympanopsis coelosphaerioides Penz. et Sacc. 170 p. 394 Java; 176 p. 9 Taf. VI Fig. 3 Java; B.
Bombardia bertioides Ces. 37 p. 21—22 Taf. IV Fig. Sarawak.
624. B. Pulvis-pyrius (Penz. et Sacc.) v. Höhnel 88 Java; 170 p. 394 (Rosellinia (Coniomela) Pulvis-pyrius Penz. et Sacc.) Java; 176 p. 8 Taf. VI Fig. 2 (Rosellinia (Coniomela) Pulvis-pyrius Penz. et Sacc.) Java.
625. Bombardiella caespitosa v. Höhnel 88 p. 36 Java.
626. Lizonia Selaginella Rac. 192 Java.
627. L. Smilacis Rac. 192 Java.

628. L. Syzygii Rac. 192 Java.
629. Koordersiella javanica v. Höhnel 87 p. 22 Java.
630. Zignoella acervata Penz. et Sacc. 170 p. 403 Java; 176 p. 17 Taf. XII Fig. 4 Java; B.
631. Z. caesalpiniae Zimmerm. 265 p. 181 Java.
632. Z. eumorpha Penz. et Sacc. 170 p. 403 Java; 176 p. 18 Taf. XIII Fig. 1 Java; B.
633. Z. (Zignoina) interspersa Penz. et Sacc. 170 p. 403 Java; 176 p. 18 Taf. XIII Fig. 3 Java; B.
634. Z. lichenoidea v. Höhnel 86 p. 57 Java.
635. Z. omphalostoma Penz. et Sacc. 170 p. 403 Java; 176 p. 18 Taf. XIII Fig. 2 Java; B.
636. Z. palmicola (Fr.) 43 p. 156 (Conisphaeria palmicola Fr.) Java.
Z. lingens (Ces.) Sacc. 37 p. 21 (Sphaeria lingens Ces.) Sarawak.
637. Hormosperma pusillum Penz. et Sacc. 170 p. 402 Java; 176 p. 17 Taf. XII Fig. 2 Java; B.
638. Melanomma anceps v. Höhnel 86 p. 56 Java.
639. M. epiphytica Rac. 192 Java.
640. M. leptosphaerioides Penz. et Sacc. 170 p. 401 Java; 176 p 16 Taf. XI Fig. 4 Java; B.
641. M. tornatum Sacc. en Paol. 170 p. 401 Java; B.

Fam. **Ceratostomataceae.**

642. Ceratostomella Bambusina v. Höhnel 86 p. 63 Java.
643. C. polyrrhynchia Penz. et Sacc. 170 p. 408 Java; 176 p. 23 Taf. XVI Fig. 4 Java; B.
644. Ceratostoma javanica Henn. et Nym. 76 p. (67) 165 Java.
645. C. piliferum (Fr.) Fuck. 128 p. 617 (Sphaeria (Ceratostoma) pilifera Fr.) Java.
646. Lentomita patellata (Penz. et Sacc.) v. Höhnel 88 p. 37 Java; 170 p. 398—399 (Melanopsamma patellata Penz. et Sacc.) Java; 176 p. 13 Taf. X Fig. 2 (Melanopsamma patellata Penz. et Sacc.) Java; B (Melanopsamma patellata Penz. et Sacc.)
647. Ophioceras Bambusae v. Höhnel 86 p. 63 Java.
648. O. dolichostomum (Berk. et Curt.) Sacc. 170 p. 409 Java; 176 p. 24 Taf. XVII Fig. 3 Java; B
649. O. Hystrix (Ces.) Sacc. subsp. tjibodense Penz. et Sacc. 170 p. 402 Java; 176 p. 24—25 Taf. XVII Fig. 4 Java; B.
650. O. majusculum Penz. et Sacc. 170 p. 409 Java; 176 p. 25 Taf. XVIII Fig. 1 Java; B.
651. Bactrosphaeria asterostoma Penz. et Sacc. 76 p. (67) 165 Taf. V Fig. 10 Java; 170 p. 407—408 Java; 176 p. 29 Taf. XVI Java; B.

Fam. **Cucurbitariaceae.**

652. Nitschkia javanica Henn. et Nym. 76 p. (69) 167 Java.
653. Eriosphaeria ambigua v. Höhnel 89 p. 36 Java.
654. E. euchaeta (Penz. et Sacc.) v. Höhnel 89 p. 36 Java; 175 p. 227 (Venturia euchaeta Penz. et Sacc.) Java; 176 p. 14—15 Taf. XI Fig. 1 (Venturia euchaeta Penz. et Sacc.) Java; B. (Venturia euchaeta Penz. et Sacc.)
655. Valetoniella crucipila v. Höhnel 89 p. 40 Java; 232 p. 12—13 Java,

Gibbera borneensis Ces. 37 p. 21 Taf. IV Fig. Sarawak.

656. Gibberidea Zingiberacearum Rac. 192 Java.
657. Teichospora xenochaeta Penz. et Sacc. 175 p. 227 Java.
658. Catharinia tetraspora v. Höhnel 89 p. 44 Java.

Cucurbitaria insularis Ces. 37 p. 20 Taf. III Fig. Sarawak.

659. Astrocystis mirabilis Berk. et Br. 170 p. 392 Java; 176 p. 6—7 Taf. IV Fig. 3 Java; B.

Fam. **Coryneliaceae.**

660. Corynelia clavata (L.) Sacc. 76 p. 27 Java.

Fam. **Amphisphaeriaceae.**

661. Amphisphaeria Amomi Henn. et Nym. 76 p. (68) 166 Java.
662. A. atro-grana (C. et E.) Sacc. 170 p. 397 Java; B.

A. Beccariana Ces. 37 p. 21 Taf. III Fig. Sarawak.

663. A. calicarpa Penz. et Sacc. 170 p. 397 Java; 176 p. 11—12 Taf. IX Fig. 1 Java; B.
664. A. edamensis Henn. et Nym. 76 p. (68) 166 Java.

A. enteroxantha Ces. 37 p. 21 Taf. III Fig. Sarawak.

Ceratosphaeria Sarawacensis (Ces.) Sacc. 37 p. 20 Taf. III Fig. (Sphaeria Sarawacensis Ces.) Sarawak.

665. Boerlagella laxa Penz. et Sacc. 170 p. 405 Java; 176 p. 20 Taf. XIV Fig. 3 Java; B.
666. B. velutina Penz. et Sacc. 170 p. 404—405 Java; 176 p. 19—20 Taf. XIV Fig. 2 Java; B.

Julella intermedia Syd. 219 p. 254—255 Deutsch Neu-Guinea.

Fam. **Lophiostomataceae.**

667. Lophiella Bambusae Hennings 79 p. 143 Java.
668. Lophiosphaera schizostoma (Mont.) Lév. 171 p. 524 Java; 176 p. 60 Java; B.

L. macrostomella (Ces.) Sacc. 37 p. 20 Taf. III (Sphaeria macrostomella Ces.) Sarawak.

669. Rostrella coffeae Zimm. 258 p. 24—62 Fig. 3—21 Java.
670. Brigantiella pallida Hennings 79 p. 143—144 Java.
671. Lophionema Bambusae v. Höhnel 86 p. 49 Fig. 16 Java.

Fam. **Mycosphaerellaceae.**

672. Neozimmermannia Elasticae Koord. 118 Java.
673. Ascospora Coffeae v. Faber 49 p. 553 Java.
673a. A. ficicola Lév. 129a, p. 277 Java.
674. A. ophioryzae Rac. 192 Java.
675. Guignardia javanica Koord. 119 p. 188 Abb. 16 III 1—7 Java.
676. G. Musae Rac. 192 Java.
677. G. (Laestadia) Theae (Rac.) Bern. 17 Java; 168 p. 47 Java; 190 (Laestadia Theae Rac.) Java; 264 p. 51 (Laestadia Theae Rac.) Java; B. (Laestadia Theae Rac.).
678. Laestadia Caesalpiniae Pat. 163 p. 121 Java.
679. L. minuscula (Lév.) Sacc. 129a p. 260 (Sphaeria (foliicola) minuscula Lév.) Java.
680. L. veneta Sacc. et Speg. 170 p. 391 Java; B.
681. Stigmatea Hydrocotyles Rac. 190 Java.
682. S. Pongamiae Rac. 190 Java.
683. Mycosphaerella congregata (Lév.) Sacc. 129a p. 261 (Sphaeria (epiphylla) congregata Lév.) Java.
684. M. creberrima (Penz. et Sacc.) 170 p. 397—398 (Sphaerella creberrima Penz. et Sacc.) Java; 176 p. 12 Taf. IX Fig. 3 (Sphaerella creberrima Penz. et Sacc.) Java; B. (Sphaerella creberrima Penz. et Sacc.).
685. M. Elasticae Koord. 118 p. 303 Java; 119 p. 189 Abb. 16 II 1—7 Java.
686. M. Erythrinae Koord. 119 p. 189 Abb. 15 Fig. 7—14 Java.
687. M. longispora (Penz. et Sacc.) 170 p. 397 (Sphaerella longispora Penz. et Sacc.) Java; 176 p. 12 Taf. IX Fig. 2 (Sphaerella longispora Penz. et Sacc.) Java; B. (Sphaerella longispora Penz. et Sacc.)
688. M. Sacchari (Wakker) 230 (Sphaerella Sacchari Wakker) Java.

Fam. **Pleosporaceae.**

689. Paidania Metastomacearum Rac. 192 Java.
690. Physalospora Arecae v. Höhnel 93 p. 45 Java.
691. P. ceratodontis Henn. et Nym. 76 p. (69) 167 Java.
692. P. Elasticae Koord. 118 p. 303 Java; 119 p. 191 Abb. 18, I, 1—4 Java.
693. P. fallaciosa Sacc. 265 p. 282 Java.
694. P. Hibisci Rac. 119 p. 190 Java; 190 Java; B.
695. P. Morindae Koord. 119 p. 190 Abb, 18 II 1—5 Java.
696. P. Symploci Rac. 190 Java.
697. P. Vanillae Zimm. 91 p. 183 Java; 266 p. 479 Fig. 8 Java.
698. Apiospora camptospora Penz. et Sacc. 170 p. 398 Java; 176 p. 12 Taf. IX Fig. 4 Java; B.

Venturia calospora (Speg.) v. Höhnel 219 p. 254 Deutsch Neu-Guinea.

699. V. elastica Pass. 119 p. 187 Java.

700. Didymella Cocconiae Rac. 192 Java.
701. D. maculosa Penz. et Sacc. 170 p. 398 Java; 176 p. 13 Taf. X Fig. 1 Java; B.
702. D. Pandani v. Höhnel 95a p. 167 Java.
703. Didymosphaeria fusispora Penz. et Sacc. 170 p. 395—396 Java; 176 p. 10 Taf. VII Fig. 3 Java; B.
704 D. impar Penz. et Sacc. 170 p. 396 Java; 176 p. 10 Taf. VIII Fig. 1 Java; B.
705. D. minutella Penz. et Sacc. 170 p. 396 Java; 176 p. 10 Taf. VII Fig. 4. Java; B.
706. D. polysticta (Berk. et Curt.) Sacc. 170 p. 395 Java.
707. D. scabrispora v. Höhnel 89 p. 41 Java.
708. D. striatula Penz. et Sacc. 175 p. 227 Java; 176 p. 10—11 Taf. VIII Fig. 2 Java; B.
D. tetraspora Massee 140 p. 124 Sarawak.
709. Asterosphaeriella bambusella v. Höhnel 95a p. 168 Java.
710. Metasphaeria javensis v. Höhnel 86 p. 54 Java.
711. M. sundapsi Rac. 192 Java.
712. M. tetrasperma Koord. 118 p. 303 Java; 119 p. 192 Abb. 17 II Java.
713. Pseudotthia Vaccinii Henn. et Nym. 76 p. (69) 167 Taf. V Fig. 13 Java; 87 p. 19 Java.
714. Leptosphaeria arundinacea (Sow.) Sacc. 37 p. 20 (Sphaeria arundinacea Sow.) Sarawak; 128 p. 617 (Sphaeria (seriata) arundinacea Sow.) Java; 144 (Sphaeria arundinacea Sow.) Java; 273 (Sphaeria arundinacea Sow.) Java.
715. L. Oryzae v. Breda de Haan 32 Java.
716. L. Sacchari v. Breda de Haan 229 Java; 239 p. 5. 6. Pl. II Fig. 2 Pl. III Fig. 2 Java.
L. scabiens (Ces.) Sacc. 37 p. 20 (Sphaeria scabiens Ces.) Sarawak.
717. L. (Asterosphaeria) Trochus (Penz. et Sacc.) v. Höhnel 86 p. 53—54 Java; 170 p. 401 (Melanomma Trochus Penz. et Sacc.) Java; 176 p. 16 Taf. XII Fig. 1 (Melanomma Trochus Penz. et Sacc.) Java; B. (Melanomma Trochus Penz. et Sacc.)
718. Ophiochaete Raciborskii Penz. et Sacc. 170 p. 406 Java; 176 p. 21—22 Taf. XV Fig. 4 Java; B.
719. Ophiobolus javanicus Penz. et Sacc. 170 p. 406 Java; 176 p. 21 Taf. XV Fig. 3 Java; B.
720. Ceuthocarpon depokense Penz. et Sacc. 170 p. 405 Java; 176 p. 20—21 Taf. XV Fig. 1 Java; B.
721. C. tjibodense Penz. et Sacc. 170 p. 405 Java; 176 p. 20 Taf. XIV Fig. 4 Java; B.
722. Leptosporella gregaria Penz. et Sacc. 170 p. 407 Java; 176 p. 22 Taf. XVI Fig. 1 Java B.
723. L. sparsa Penz. et Sacc. 170 p. 407 Java; 176 p. 22 Taf. XVI Fig. 2 Java; B.

724. Acerbia calmigena Penz. et Sacc. 170 p. 405—406 Java; 176 p. 21 Taf. XV Fig. 2 Java; B.
725. Pleospora herbarum (Pers.) Rab. 107 p. 15—16 Java; 142 p. 36) Java.
726. Gibellina concentrica Rac. 190 Java.

Fam. **Massariaceae.**

727. Massariopsis substriata v. Höhnel 95a p. 170 Java.
728. Massariella javanica (Penz. et Sacc.) v. Höhnel. 95a p. 169 Java; 170 p. 339 (Pteridiospora javanica Penz. et Sacc.) Java; 176 p. 13—14 Taf. X Fig. 3 (Pteridiospora javanica Penz. et Sacc.) Java; B. (Pteridiospora javanica Penz. et Sacc.)

Fam. **Clypeosphaeriaceae.**

739. Trabutia Stephaniae Rac. 180 Java.
730. Anthostomella Arthrophylli Koord. 119 p. 195 Java.
731. A. bambusaecola v. Höhnel 95a p. 181 Java.
732. A. Elasticae Koord. 118 p. 304 Java; 119 p. 195 Abb. 19 II Java.
733. A. grandispora Penz. et Sacc. 170 p. 392 Java; 176 p. 6 Taf. IV Fig. 2 Java; B.
734. A. (Atrocystis) mirabilis (Berk. et Br.) v. Höhnel 86 p. 54 Java.
735. A. obtusispora Penz. et Sacc. 170 p. 392 Java; 176 p. 6 Taf. IV Fig. 1 Java; B.
736. A. Pandani (Rabenh.) Sacc. 170 p. 391 Java; 176 p. 6 Taf. III Fig. 4 Java; B.
737. A. Rottlerae Rac. 190 Java.
738. Linospora capillaris Penz. et Sacc. 170 p. 409 Java; 176 p. 24 Taf. XVII Fig. 2 Java; B.
739. L. Elasticae Koord. 118 p. 304 Java; 119 p. 193 Abb. 20 Fig. 1—15 Java.

Fam. **Diaporthaceae.**

740. Gnomonia setiformis (Pers.) Sacc. 129a p. 262 (Sphaeria (epiphylla) setiformis Pers.) Java.
741. Gnomoniella Catappae Koord. 119 p. 192 Abb. 19 I 1-5 Java.
742. Phomatospora Elasticae Zimm. 118 Java; 269 p. 15 Java.
743. Diaporthe (Tetrastaga) javanica Penz. et Sacc. 171 p. 503 Java; 176 p. 35 Taf. XXIV Fig. 4 Java.
744. D. (Chorostate) libera v. Höhnel 86 p. 66 Java.

Fam. **Coronophoraceae.**

745. Coronophorella chaetomioides (Penz. et Sacc.) v. Höhnel 89 p. 45 Java; 170 p. 390-391 (Enchnoa chaetomioides Penz. et Sacc.) Java; 176 p. 4 Taf. II Fig. 3 (Enchnoa chaetomioides Penz. et Sacc.) Java; B. (Enchnoa chaetomioides Penz. et Sacc.)

Fam. **Valsaceae.**

746. Anthostoma marginato-clypeata (Penz. et Sacc.) v. Höhnel 89 Java; 170 p. 393 (Rosellinia (Amphisphaerella) marginato-clypeata Penz. et Sacc.) Java; 176 p. 7 Taf. V Fig. 2 (Rosellinia (Amphisphaerella) marginato-clypeata Penz. et Sacc.) Java.
747. A. (Sphaeranthostoma) sphaerospora v. Höhnel 94 p. 46 Taf. 13 Fig. Java.
748. A. (Euanthostoma) tjibodense Penz. et Sacc. 171 p. 502 Java; 176 p. 33 Taf. XXIII Fig. 4 Java; B.
749. A. (Fuckelia) valsarioides Penz. et Sacc. 171 p. 502 Java; 176 p. 34 Taf. XXIV Fig. 2 Java; B.
750. A. (Fuckelia) Verrucula Penz. et Sacc. 171 p. 502 Java; 176 p. 33-34 Taf. XXIV Fig. 1 Java; B.
751. Valsa Fusani Henn. et Nym. 76 p. (69) 167 Java.
752. Eutypa aemula Penz. et Sacc. 171 p. 500 Java; B.
753. E. bambusina Penz. et Sacc. 76 p. (70) 168 Java; 171 p. 501 Java; 176 p. 32 Taf. XXIII Fig. 1 Java; B.
754. E. heteracantha Sacc. 171 p. 501 Java; B.
755. Melchioria leucomelaena Penz. et Sacc. 76 p. 26 Java; 89 p. 27 Java; 170 p. 399—400 Java; 176 p. 14 Taf. X Fig. 4 Java; B.
756. Rynchostoma rhytidosporum Penz. et Sacc. 170 p. 408 Java; 176 p. 24 Taf. XVII Fig. 1 Java; B.
757. Thyridaria tarda Bancroft 206 p. 23 Java.

Fam. **Melanconidaceae.**

758. Valsaria massarioides Penz. et Sacc. 171 p. 503 Java; 176 p. 34 Taf. XXIV Fig. 3 Java; B.

Fam. **Diatrypaceae.**

759. Calosphaeria Cinchonae Zimm. 197 p. 39 Fig. 21a—b Java.
760. Diatrype parvula Penz. et Sacc. 171 p. 501 Java; 176 p. 33 Taf. XXIII Fig. 3 Java; B.
761. D. (Pachytrype) princeps Penz. et Sacc. 171 p. 501 Java; 176 p. 32—33 Taf. XXIII Fig. 2 Java; B.

Fam. **Melogrammataceae.**

762. Botryosphaeria inflata Cooke et Massee 95a p. 143 Java.
763. B. (?) Nephrodii v. Höhnel 94 p. 47 Java.
764. B. phyllachoroidea Penz. et Sacc. 181 p. 530 Java; 176 p. 5 Taf. III Fig. 2 Java; B.
765. B. Uncariae Rac. 192 Java.
766. B. tjampeana Rac. 192 Java.
767. Endothia gyrosa (Schw.) Fuck 171 p. 503 Java; B.
768. Winterella eutypoides Penz. et Sacc. 171 p. 504 Java; 176 p. 35 Taf. XXV Fig. 1 Java; B.
769. Myrmaecium Milletiae Rac. 192 Java.

Fam. **Xylariaceae.**

770. Nummularia minutula Penz. et Sacc. 171 p. 495 Java; 176 p. 28 Taf. XX Fig. 2 Java; B.
771. N. tinctor (Berk.) Ellis 171 p. 494 Java; B.
772. N. uniapiculata Penz. et Sacc. 171 p. 494—495 Java; 176 p. 28 Taf. XX Fig. 1 Java; B.
773. Bolinia tubulina (Alb. et Schw.) Sacc. 128 p. 616 (Sphaeria (glebosa) tubulina Alb. et Schw.) Java.
774. Ustulina vulgaris Tul. 76 p. (71) 169 Java.
775. U. zonata (Lév.) Sacc. 25 p. 8 p. 10 Java; 86 p. 69 Java; 128 p. 616 (Sphaeria zonata Lév.) Java; 158 p. 22—23 Java; 171 p. 493—494 Java.

Hypoxylon approximans Ces. 37 p. 18 Taf. III Sarawak.

776. H. annulatum (Schw.) Mont. 76 p. (70) 168 Java; 171 p. 492 Java; B.
777. H. anthracoderma Speg. 171 p. 491 Java.

H. anthracodes Mont. 37 p. 19 Sarawak.

778. H. Archeri Berk. 171 p. 492 Java; B.
779. H. atropurpurea Fr. 107 p. 18 (Sphaeria atropurpurea Fr.) Java; 142 p. 310 (Sphaeria atropurpurea Fr.) Java.

H. Avellana Ces. 37 p. 18 Taf. III Sarawak.

780. H. bifrons de Not. 171 p. 493 Java; B.
781. H. bogoriense v. Höhnel 86 p. 67 Java.

H. coelatum (Fr.) 37 p. 19 Sarawak.

H. coenopus (Fr.) Ces. 37 p. 18 Sarawak.

782. H. cohaerens (Pers.) 107 p. 19 (Sphaeria cohaerens Pers.) Java; 142 p. 310 (Sphaeria Cohaerens Pers.) Java.

H. cohaerens (Pers.) var. tenuior Ces. 37 p. 18 Sarawak.

H. comedens Ces. 37 p. 19 Sarawak.

782a. H. confluens Tode 43 p. 56 Java.

H. deustum Fr. 37 p. 18 Sarawak.

383. H. discophorum Penz. et Sacc. 171 p. 492 Java; 176 p. 26 Taf. XVIII Fig. 4 Java; B.

H. fragariae Ces. 37 p. 18 Taf. III Sarawak.

784. H. fuscum (Pers.) Fr. 76 p. (70) 168 Java.

H. (?) gangraena Ces. 37 p. 19 Sarawak.

785. H. gigaspermum Hennings 76 p. (70) 168 Java; 86 p. 68 Java.
786. H. gilva (Jungh.) Sacc. 107 p. 20 (Sphaeria gilva Jungh.) Java; 142 p. 310 (Sphaeria gilva Jungh.) Java.
787. H. Heinricherii Bres. 33 p. 241 Java.
788. H. incana Pers. 128 p. 615 (Sphaeria incana P.) Java.

H. macrocenangium Ces. 37 p. 19 Sarawak.

789. H. marginatum (Schwein.) Berk. 37 p. 17 Sarawak; 76 p. (70) 168 Java.

790. H. microcarpum Penz. et Sacc. 171 p. 492—493 Java; 176 p. 26 Taf. XIX Fig. 1 Java; B.
H. micropus Ces. 37 p. 18 Taf. III Sarawak.
791. H. microsorum Penz. et Sacc. 175 p. 225 Java; 176 p. 26—27 Taf. XIX Fig. 2 Java.
H. microsporum Ces. 37 p. 17 Sarawak.
792. H. microstroma Penz. et Sacc. 171 p. 491 Java; 176 p. 25—26 Taf. XVIII Fig. 3 Java; B.
793. H. Oedipus 142 p. 319 (Sphaeria (Poronia) incrassata Jungh.) Java.
H. pauxillum Ces. 37 p. 18 Sarawak.
H. pavimentosum Ces. 37 p. 18 Sarawak.
794. H. peltata (Jungh.) Sacc. 107 p. 20 (Sphaeria peltata Jungh.) Java; 142 p. 310 (Sphaeria (Pulvinata) peltata Jungh.) Java.
795. H. perforatum (Schw.) Sacc. 171 p. 493 Java; B.
796. H. pistillare Henn. et Nym. 76 p (71) 169 Java.
H. pithodes Berk. 37 p. 19 Sarawak.
797. H. polymorphum Ehr. 10 p. 164 Borneo.
798. H. polyspermum Mont. 171 p. 492 Java; B.
H. Pseudo-tubulina Ces. 37 p. 19 Sarawak.
799. H. rubellum Penz. et Sacc. 171 p. 491 Java; 176 p. 25 Taf. XVIII Fig. 2 Java; B.
800. H. rubiginosa (Pers.) Fr. 76 p. (70) 168 Java; 107 p. 19 (Sphaeria rubiginosa Pers.) Java; 142 p. 310 (Sphaeria (connata) rubiginosa Pers.) Java; B.
H. serpens Fr. 37 p. 18 Sarawak.
H. stigmoideum Ces. 37 p. 17 Sarawak.
801. H. subannulatum Henn. et Nym. 76 p (70) 168 Java.
H. tormentosum Ces. 37 p. 19 Sarawak.
H. udum Fr. 37 p. 17 Sarawak.
802. H. undosum (Lév.) Sacc. 128 p. 616 (Sphaeria (pulvinata) undosa Lév.) Java.
803. H. vividum Berk. et Br. 221 Timor.
804. Daldinea concentrica (Bolt.) Ces. et de Not. 10 p. 164 (Hypoxylon concentricum) Borneo; 107 p. 20 (Sphaeria concentrica Pers.) Java; 142 p. 310 (Sphaeria (Pulvinata) concentrica Bolt.) Java; 221 Timor; 273 (Sphaeria concentrica Tode) Java; 176a p. 180 (Sphaeria concentrica) Rawak; 70 p. 225 Java; 76 p. (71) 169 Java; 163 p. 121 Java; 171 p. 494 Java; B.
805. D. Warburgii Henn. 76 p. 27 Celebes.
805a. D. vernicosa (Schw.) 163 p. 121 Java.
806. Kretzschmaria gomphoidea Penz. et Sacc. 171 p. 493 Java; 176 p. 27 Taf. XIX Fig. 3 Java; B.
K. novo-guineensis Hennings 68 p. 7 Deutsch Neu-Guinea; 71 p. 38 Deutsch Neu-Guinea; 214 p. 63 Deutsch Neu-Guinea; 219 p. 255 Deutsch Neu-Guinea.

Xylaria acicula Ces. 37 p. 15 Sarawak.

807. X. allantoidea Berk. 37 p. 16 Sarawak; 40 p. 118 Englisch Neu-Guinea; 76 p. (71) 169 Java; B.

808. X. aristata Mont. 37 p. 15 Sarawak; 171 p. 500 Java; B.

809. X. axifera Mont. 37 p. 15 Sarawak; 171 p. 499 Java; B.

X. caespitulosa Ces. 37 p. 15 Sarawak

X. calocephala Syd. 219 p. 255 Fig. IF Deutsch Neu-Guinea.

810. X. carpophila (Pers.) Fr. 70 p. 224 Deutsch Neu-Guinea; 71 p. 38 Deutsch Neu-Guinea; 171 p. 499—500 Java; 214 p. 63 Deutsch Neu-Guinea; B.

811. X. castorea Berk. 134 p. 951 Java.

X. complanata Ces. 37 p. 16 Sarawak.

812. X. compuncta (Jungh.) Berk. 170 p. 21 Fig. 11 (Sphaeria compuncta Jungh.) Java; 142 p. 310 (Sphaeria (Pulvinata) compuncta Jungh) Java.

X. corniformis Fr. 37 p. 17 Sarawak.

813. X. curpressiformis (Mich.) Becc. 37 p. 17 Sarawak; 171 p. 498 Java; B.

X. dealbata Berk. et Curt. 40 p. 118 Englisch Neu-Guinea.

814. X. diceras Lév. 171 p. 496 Java; B.

815. X. dichotoma Lév. 37 p. 17 (Xylaria dichotoma Kunze) Sarawak; 171 p. 500 Java; B.

816. X. digitata (L.) Grev. 76 p. (71) 169 Java; 273 (Sphaeria digitata Ehr.) Java.

817. X. digitata (L.) Grev. var. dubia Jungh. 107 p. 23 (Sphaeria digitata Ehrb. var. dubia Jungh.) Java.

818. X. digitata (L.) Grev. var. torulosa Jungh. 107 p. 22 (Sphaeria digitata Ehrb. var torulosa Jungh.) Java.

819. X. echinata (Lév.) Fr. 128 p. 615 (Sphaeria echinata Lév.) Java.

820. X. exaltata Berk. et Br. 221 Timor.

X. fissilis Ces. 37 p. 16 Sarawak.

821. X. fistulosa (Lév.) Fr. 128 p. 615 (Sphaeria fistulosa Lév.) Java.

822. X. furcata Fr. 85 p. 10 Java; 128 p. 616 (Sphaeria dichotoma Lév.) Java.

823. X. Gardneri Berk. 163 p. 121 Java; B.

824. X. gigantea (Zipp.) Lév. 33 p. 240 Java; 37 p. 16 (Xylaria gigantia (Zipp.) Ces.) Sarawak; 128 p. 614 (Sphaeria gigantea Zipp. und Sphaeria tabacina Lév.) Java; 171 p. 495 Java; B.

825. X. globosa (Sp. et Fr.) Mont. 171 p. 497 Java; B.

826. X. globosa (Sp. et Fr.) Mont. var. minor 171 p. 497 Java.

827. X. Gomphus Fr. 128 p. 615 (Sphaeria Gomphus Fr.) Java.

828. X. gracillima Fr. 128 p. 615 (Sphaeria gracillima Fr.) Java; 144 (Sphaeria gracillima Fr.) Java; 273 (Sphaeria gracillima Fr.) Java.

829. X. gracilis Kl. 142 p. 310 (Sphaeria digitata Fr.) Java.

X. Guepini (Fr.) Ces. 37 p. 17 Sarawak.

830. X. haemorrhordalis Berk. et Br. 171 p. 498 Java; 176 p. 30 Java; B.
831. X. heloidea Penz. et Sacc. 171 p. 498 Java; 176 p. 30 Taf. XXI Fig. 3 Java; B.
832. X. holobapha Berk. 171 p. 495—496 Java; 176 p. 28—29 Taf. XX Fig. 3 Java; B.
833. X. humilis Penz. et Sacc. 171 p. 497—498 Java; 176 p. 29 Taf. XXI Fig. 2 Java; B.
834. X. hyperythra Mont. 171 p. 496 Java; B.
835. X. Hypoxylon (L.) Grev. 76 p. (71) 169 Java; 107 p. 22 (Sphaeria Hypoxylon L.) Java; 109 p. 388 (Sphaeria Hypoxylon) Java; 142 p. 310 (Sphaeria Hypoxylon Fr.) Java; 273 (Sphaeria Hypoxylon Ehrb.) Java.
X. Hypoxylon (L.) Grev. var. mucronata Berk. 37 p. 16 Sarawak.
X. intermedia Ces. 37 p. 16 Sarawak.
836. X. involuta (Klotzsch) Sacc. 40 p. 118 Englisch Neu-Guinea; 76 p. (71) 169 Java; 171 p. 495 Java; B.
837. X. janthino-velutina (Mont.) 128 p. 616 (Sphaeria janthino-velutina Mont.) Java; 144 (Sphaeria janthino-velutina Mont.) Java; 273 (Sphaeria janthino-velutina Mont.) Java.
838. X. Kegeliana Lév. 171 p. 499 Java; B.
839. X. leucosticta Penz. et Sacc. 171 p. 496 Java; 176 p. 29 Taf. XXI Fig. 1 Java.
840. X. Lingua (Lév.) Fr. 70 p. 224 Java; 76 p. 27 und p. (71) 169 Java; 128 p. 614 (Sphaeria Lingua Lév. Java; 144 (Sphaeria Lingua Lév.) Java; 202 p. 297 Tab. V Fig. 5 Java; 273 (Sphaeria Lingua Lév.) Java.
X. massula Ces. 37 p. 15 Taf. III Sarawak.
X. mauritiensis Hennings 219 p. 255 Deutsch Neu-Guinea.
X. melanaxis Ces. 37 p. 16 Sarawak.
841. X. microceras (Mont.) Berk. 128 p. 615 (Sphaeria microceras Mont.) Java.
842. X. mucronata (Schw.) Sacc. 171 p. 499 Java; B.
843. X. multifida (Kze.) Cooke 128 p. 616 (Sphaeria multifida Kze.) Java.
844. X. multiplex (Kze. et Fr.) Berk. et Curt. 273 (Sphaeria multiplex Kze.) Java.
845. X. nigripes Klotzsch. 76 p. (71) 169 Java; 85 p. 10 Java; 171 p. 497 Java; 202 p. 299 Taf. VI Fig. 8 Java; B.
X. novo-guineensis Rehm. 70 p. 224 Deutsch Neu-Guinea; 71 p. 38 Deutsch Neu-Guinea; 76 p. 27 Neu-Guinea; 202 p. 298 Taf. V Fig. 6 Neu-Guinea; 214 p. 63 Deutsch Neu-Guinea.
846. X. oocephala Penz. et Sacc. 171 p. 500 Java; 176 p. 30—31 Taf. XXII Fig. 1 Java; B.
X. phyllophyla Ces. 37 p. 15 Sawarak.

847. X. pilaeformis Berk. et Curt. 171 p. 497 Java; B.
X. plebeia Ces. 37 p. 16 Sarawak; 221 Timor.
848. X. polymorpha (Pers.) Grev. 37 p. 16 Sarawak; 76 p. 27 Celebes, p. (71) 169 Java; 107 p. 23 (Sphaeria polymorpha Pers.) Java; 142 p. 310 (Sphaeria polymorpha Fr.) Java; 144 (Sphaeria polymorpha Fr.) Java; 163 p. 121 Java; 273 (Sphaeria polymorpha Fr.) Java.
849. X. polysticha Penz. et Sacc. 171 p. 498—499 Java; 176 p. 30 Taf. XXI Fig. 4 Java; B.
850. X. retipes (Lév.) Fr. 129a p. 257 (Sphaeria rétipes Lév.) Java; 144 (Sphaeria retipes. Lév.) Java; 273 (Sphaeria retipes Lév.) Java.
X. rhizocola Mont. 37 p. 16 Sarawak.
X, Rhizomorpha Mont. 37 p. 15 Sarawak.
X. Schweinitzii Berk. et Curt. 221 Timor.
851. X. scopiformis Mont. 74 p. 508 Neu-Guinea; 76 p. (71) 169 Java; 138 p. 123 Englisch Neu-Guinea; 163 p. 121 Java; 171 p. 497 Java; 214 p. 64 Deutsch Neu-Guinea; 273 (Sphaeria scopiformis) Java; B.
852. Xylaria scruposa (Fr.) Berk. 128 p. 615 (Sphaeria scruposa Fr.) Java.
853. X. subterranea (Schw.) Sacc. 171 p. 499 Java; B.
854. X. tenuissima (Zipp.) Fr. 128 p. 615 (Sphaeria tenuissima Zipp.) Java.
855. X. Thyrsus (Berk.) Sacc. 128 p. 615 (Sphaeria Thyrsus Berk.) Java.
856. X. torrubioides Penz. et Sacc. 171 p. 226 Java; 176 p. 29 Taf. XX Fig. 4 Java; B.
857. X. trichopoda Penz. et Sacc. 175 p. 226 Java; 176 p. 31 Taf. XXII Fig. 4 Java; B.
858. X. varians Penz. et Sacc. 175 p. 225 Java; 176 p. 31 Taf. XXII Fig. 2 Java.
859. X. ventricosa Berk. 43 p. 56 Java.
X. Weinlandii Henn. 78 p. 341 Neu-Guinea; 215 p. 28 Deutsch Neu-Guinea.
860. X. Xanthophaea Penz. et Sacc. 175 p. 226 Java; 176 p. 31 Taf. XXII Fig. 3 Java; B.
861. Thamnomyces Warburgii Hennings 70 p. 224—225 Neu-Guinea; 71 p. 38 Neu-Guinea; 76 p. 27 (Xylaria Warburgii Henn.) Neu-Guinea und p. (71) 169 (Xylaria Warburgii Henn.) Java; 214 p. 64 Deutsch Neu-Guinea.
Poronia Oedipus Mont. 37 p. 14 Sarawak.
862. Penzigia macrospora Penz. et Sacc. 171 p. 494 Java; 176 p. 27—28 Taf. XIX Fig. 4 Java; B.

Fam. **Laboulbeniaceae.**
Dichomyces Belonuchi Thaxt. 215 p. 300 Deutsch Neu-Guinea.

Basidiomycetes.

Hemibasidii

Fam. **Ustilaginaceae.**

863. Ustilago Coicis Brefeld. 190 Java.
U. leucoderma Berk. 37 p. 26 Sarawak.
864. U. montaniensis Ell. et Everh. 141 p. 265 Holländisch Neu-Guinea.
865. U. Nawaschi Rac. 192 Java.
866. U. nuda (Jens.) 66 p. 24—26 Java.
867. U. Ophiuri Hennings 76 p. 1 Java.
868. U. Sacchari Rabenh. 125 Java; 229 Java; 230 Java; B.
869. U. Treubii Solms Laubach 218 p. 79—92 Taf. IX Fig. 1—15 Java; B.
870. U. tritici (Pers.) Rost. 66 p. 24—26 Java; 160 p. 1, 6 Java.
871. U. utriculosa (Nees.) Tul. 175 p. 231 Java; B.
872. U. endotricha (Berk.) B.
873. Cintractia javanica Rac. 192 Java.
874. Poikilosporium bogoriense Rac. 190 Java.
875. Tolyposporium bogoriense Rac. 192 Java.

Fam. **Tilletiaceae.**

876. Tilletia horrida Takahashi 209 p. 1 Java; 211 p. 322 Java.
877. Entyloma Nephrolepidis Rac. 190 Java.
878. Sphacelotheca Hydropiperis (Schum.) de Bary 76 p. 2 Java.
879. Melanotaenium Selaginellae Hennings et Nyman 76 p. 2 Java.
880. Tubercina javanica Koord. 119 p. 196 Abb. 21 Fig. 1—7 Java.
881. Urocystis Anemones (Pers.) 61 p. 91 Java.
882. Graphiola Arengae Rac. 190 Java; B.
883. G. macrospora Penz. et Sacc. 175 p. 232 Java; B.
884. G. phoenicis (Moug.) Poit. B.
885. Farysia javanica Rac. 87 p. 1 Java; 192 Java.

Uredinales.

Fam. **Endophyllaceae.**

886. Endophyllum Dichroae Rac. 193 p. 274 Java.
887. E. Griffitsiae Rac. 190 Java; B.

Fam. **Schizosporaceae.**

888. Masseeella javanica Hennings 76 p. 32 Java.

Fam. **Melampsoraceae.**

889. Cronartium Kemangae Rac. 190 Java; B.
890. C. malloti Rac. 190 Java.
891. Dietelia Eviae Rac. 190 Java.
892. Phacopsora Elettariae (Rac.) v. Höhnel 95c p. 44—45 Java; 190 (Schroeteriaster Elettariae Rac.) Java; B.

893. P. Curcumae v. Höhnel 95c p. 44—45 Java; 93 p. 1 (Klastopsora Curcumae v. Höhnel) Java.

Fam. **Pucciniaceae.**

Gymnosporangium phaeosporum Ces. 37 p. 26 (Ceratitium phaeosporum Ces.) Sarawak.

894. Hamaspora longissima Körn. 190 p. 21 Java; B.
895. H. gedeana Rac. 193 p. 275 Java.
896. Hemileia vastatrix Berk. et Br. 46 Java; 50 Java; 70 p. 216 Java; 76 p. 3 Java; 256 Java; 260 p. 441 Java; 264a p. 643 Java; 267 p. 25—34—71 Fig. 18—21 Pl. I Fig. 15—18, 29—30, 43. Java; 268 Java; B.
897. Hemileiopsis Strophanti Rac. 190 Java; B.
898. H. Wrightii Rac. 190 Java; B.

Uromyces Albizziae Hennings 68 p. 4 Deutsch Neu-Guinea.

899. U. Cedrelae Hennings 119 p. 199 Abb. 23 Fig. 1—3 Java.
900. U. discoideus Rac. 193 p. 267 Java.
901. U. Euphorbiae-javanicae Ed. Fischer 61 p. 91 Java.
902. U. Inocarpi Rac. 190 Java.

U. Kärnbachii Hennings 68 p. 4—5 Deutsch Neu-Guinea.

903. U. Kühnii Krüg. 125 Java.

U. Malloti Hennings 68 p. 46 Deutsch Neu-Guinea.

904. U. Mucunae Rabenh. 175 p. 231 Java.
905. U. Payenae Rac. 193 p. 268 Java.
906. U. Phaseoli (Pers.) Link. 190 Java.
907. U. Sacchari Krüger; 125 Java; B.
908. U. Thelymitrae Mc. Alp. 61 p. 92 Java; 91 p. 175 Java; 193 p. 267 (Uromyces Thelymitrae Rac). Java.
909. U. Wurthii Ed. Fischer 61 p. 91 Java.
910. Gerwasia Rubi Rac. 193 p. 271 Java.
911. Puccinia amboinensis Thüm. 220 p. 4 Ambon.
912. P. brevispora Rac. 190 Java.
913. P. Cesatii Schroet. 119 p. 198 Java.
914. P. consimilis Hennings 73 p. 10 Java.
915. P. Curculigo Rac. 190 Java; B.
916. P. Cypripedii Arthur 91 p. 176 Java.
917. P. Endiviae Pass. 61 p. 95 Java.
918. P. exhausta Dietel 61 p. 93 Java.
919. P. Geophilae Rac. 190 Java; B.
920. P. macrocarya Rac. 190 Java.
921. P. Mapaniae Rac. 190 Java; B.
922. P. Moringae Koord. 119 p. 198 Abb. 23 IV Java.
923. P. (Hemipuccinia) Oldenlandiae Hennings 68 p. 5 Java.
924. P. periodica Rac. 175 p. 231 Java; 190 Java; B.
925. P. Pimpinellae (Strauss) Mart. 61 p. 94 Java.

926. P. purpurea Cooke 76 p. 2 Java.
927. P. Puspa Rac. 193 p. 273 Java.
928. P. Prainiana Barcl. 175 p. 232 Java.
929. P. Solmsii Hennings 190 Java; B.
930. P. Thwaitesii Berk. 70 p. 217 Sumatra; 74 p. 495 Deutsch Neu-Guinea; 76 p. 2 Java; 119 p. 198 Abb. 22 I Java; 175 p. 232 Java; 190 Java; 214 p. 35 Deutsch Neu-Guinea; B.
931. P. Thwaitesii Berk. var. novo-guineensis Hennings 68 p. 5 Neu-Guinea.
932. P. Toddaleae Rac. 193 p. 272 Java.
933. P. Toreniae Rac. 190 Java.
934. P. Wurthii Ed. Fischer 61 p. 93 Java.
935. P. Xanthoxyli Ed. Fischer 61 p. 93 Java.
936. Goplana Aporosae Rac. 192 Java.
937. G. Michaeliae Rac. 190 Java.
938. G. mirabilis Rac. 192 Java.
939. Triphragmium pulchrum Sacc. 190 Java; B.
940. T. Thwaitesii Berk. et Br. 76 p. 3 Java; 175 p. 232 Java; 190 Java; B.
941. Sphaerophragmium Mucunae Rac. 193 p. 273 Java.
942. Skierka Agallocha Rac. 193 p. 275 Java.
943. S. Canarii Rac. 126 p. 197 Abb. 22 II Java; 190 Java; B.
944. Uromycladium Tepperianum (Sacc.) Mc. Alpine 70 p. 216 (Uromyces Tepperianus Sacc.) Java; 76 p. 2 (idem) Java; 163 p. 120 (idem) Java; 264 p. 803 (idem) Java; 193 p. 269 Java; B. (idem).

Aecidium Adenostemmae Hennings 74 p. 596 Deutsch Neu-Guinea; 214 p. 36 Deutsch Neu-Guinea.

945. A. cinnamomi Rac. 190 Java; B.
946. A. Clerodendri Hennings 68 Holländisch Neu-Guinea; 76 p. 4 Java.
947. A. Dichrocephali Hennings 76 p. 4 Java.
948. A. Elaeocarpi Rac. 193 p. 276 Java.
949. A. Eleagni Diet. 190 Java.

A. fragiforme Ces. 37 p. 26 Sarawak.

950. A. Griffitsiae Hennings 76 p. 4 Java.
951. A. Ipomoeae Thüm. 175 p. 232 Java; 190 Java; B.

A. Kärnbachii Hennings 68 p. 5 Deutsch Neu-Guinea; 214 p. 36 Deutsch Neu-Guinea.

A. Lauterbachii Hennings 71 p. 23 Deutsch Neu-Guinea; 214 p. 36 Deutsch Neu-Guinea.

952. A. Litsaeae Pat. 175 p. 232 Java; B.
953. A. Mori Barkley 193 p. 277 Java.
954. A. moricola Hennings 79 p. 140—141 Java.
955. A. Oleae Hennings 70 p. 217 Java; 76 p. 4 Java.

A. Phyllanthi Hennings 68 p. 6 Deutsch Neu-Guinea; 214 p. 36 Deutsch Neu-Guinea.

956. A. Paramignyae Rac. 193 p. 277 Java.

A. Puerariae Hennings 68 p. 6 Deutsch Neu-Guinea; 214 p. 36 Deutsch Neu-Guinea.

957. A. Puspa Rac. 190 Java.

958. A. rhytismoides Rac. 190 Java.

A. Sarawacense Ces. 37 p. 26 Sarawak.

959. A. Thelymotrae Rac. 190 Java.

960. Caeoma Anthurii Har. var. Alocasiae Rac. 193 p. 278 Java.

961. C. arundinae Rac. 190 Java; B.

962. C. Clerodendri Rac. 190 Java.

963. Uredo Acori Rac. 190 Java; B.

U. Albizziae Hennings 214 p. 36 Deutsch Neu-Guinea.

U. Alocasiae Hennings 68 p. 6 Deutsch Neu-Guinea; 214 p. 36 Deutsch Neu-Guinea.

964. U. Antidesmae Rac. 190 Java; B.

965. U. Antidesmae dioicae Rac. 190 Java; B.

966. U. Arundinariae Syd. 190 Java.

967. U. Brideliae Koord. 119 p. 201 Java.

968. U. Cannae Wint. 175 p. 232 Java; B.

969. U. Cedrelae Hennings 79 p. 140 Java; B.

970. U. Chonemorphae Rac. 190 Java; 193 p. 278 Java; B.

971. U. Cinchonae Hennings 79 p. 140 Java; 197 p. 3 Java.

972. U. clerodendricola Hennings 79 p. 140 Java.

973. U. Derris Hennings 70 p. 217 Java; 76 p. 3 Java.

974. U. Dianellae Rac. 190 Java; B.

U. Dischidiae Hennings 74 p. 495 Deutsch Neu-Guinea; 214 p. 36 Deutsch Neu-Guinea.

975. U. Dioscoreae aculatae Rac. 190 Java; B.

976. U. Dioscoreae alatae Rac. 190 Java; B.

977. U. Dioscoreae filiformidis Rac. 190 Java; B.

978. U. Dodonaeae Koord. 119 p. 201 Java.

979. U. Freycinetiae Rac. 190 Java.

980. U. Geophilae Hennings et Nyman. 76 p. 3 Java.

981. U. Gossypii Rac. 190 Java; B.

U. Jacquemontiae Hennings 71 p. 23 Deutsch Neu-Guinea; 214 p. 37 Deutsch Neu-Guinea.

U. Kärnbachii Hennings 71 p. 23 Deutsch Neu-Guinea; 214 p. 37 Deutsch Neu-Guinea.

982. U. Kühnii (Krüg.) Went et Wakker 229 Java.

983. U. Lanneae v. Höhnel 93 p. 1 Java.

U. Malloti Hennings 214 p. 37 Deutsch Neu-Guinea.

984. U. moricola Hennings 193 p. 278 Java; 79 p. 140 Java.

985. U. orientale Rac. 193 p. 279 Java.
986. U. pedicellata Rac. 193 p. 279 Java.
987. U. Phaji Rac. 190 Java; 91 p. 178 Java; B.
988. U. Premnae Koord. 119 p. 200 Abb. 23 III Java.
989. U. Raciborskii Koord. 119 p. 201 Abb. 23 II Java; 190 (U. Pithecolobii Rac.) Java.
990. U. Tectonae Rac. 119 p. 201 Java; 190 Java; B.
991. U. Vitexi Rac. 193 p. 279 Java.

Auriculariales.

Fam. **Auriculariaceae.**

992. Stypinella incrustans (Rac.) 192 (Helicobasidium incrustans Rac.) Java.
993. Platygloea Hymenolepidis Rac. 192 Java.
994. Jola javensis Pat. 163 p. 119 Pl. XXV Fig. 7—15 Java; 164 p. 97 Java; 193 p. 226 Java.
995. Auricularia ampla Pers. 273 Java; 176a p. 177 Rawak.
996. A. Auricula-Judae (L.) Schröter 10 p. 164 (Exidia Auricula Judae Fr.) Java; 40 p. 117 (Hirneola Auricula Judae Fr.) Englisch Neu-Guinea; 47 p. 67 Verlateneiland; 71 p. 23 Deutsch Neu-Guinea; 74 p. 496 Deutsch Neu-Guinea; 76 p. 5 Celebes und Liukiu eil.; 76 p. (39) 137 Java; 96 p. 37 Taf. VI Fig. 1a—5 Java. 98 Java; 118 p. 304 Java; 119 p. 202 Java; 163 p. 118 Java; 204 p. 126—127 Taf. LVI Fig. 4 (Boletus quintus auris murina) Ambon.
A. cornea Ehrenb. 221 Timor.
997. A. delicata (Fr.) Hennings 33 p. 240 (Hirneola delicata (Fr.) Bres.) Java; 71 p. 24 Java und Deutsch Neu-Guinea; 76 p. (39) 137 Java; 83 p. 65 Java; 96 p. 37 (Laschia velutina Lév.) Java; 107 p. 76 (Merulius affinis Jungh.) Java; 127 p. 217 (Laschia velutina Lév.) Java; 128 p. 603 (Laschia delicata Fr.) Java; 128 p. 612 (Laschia velutina Lév.) Java; 128 p. 613 (Merulius affinis Jungh.) Java; 132 p. 2 (Merulius affinis Jungh.) Java; 142 p. 317 (Merulius affinis Jungh.) Java; 214 p. 37 Deutsch Neu-Guinea; 219 p. 252 (Hirneola affinis (Jungh.) Bres.) Deutsch Neu-Guinea; 221 (Hirneola affinis (Jungh.) Bres.) Timor.
A. lobata Sommerf. 37 Borneo.
998. A. mesenterica (Dietel) Fr. 76 p. 5 Java; 135 p. 1015 Verlateneiland; 144 (Phlebia mesenterica Fr.) Java; 221 (Auricularia mesenterica Bull.) Timor; 273 (Phlebia mesenterica Fr.) Java.
A. nobilis (Lév.) 221 (Hirneola nobilis Lév.) Timor.
999. A. pellucida (Jungh.) 107 p. 26 (Exidia pellucida Jungh.) Java; 142 p. 311 (Exidia pellucida Jungh.) Java.

1000. A. polytricha (Mont.) 40 p. 117 (Hirneola polytricha Mont.) Englisch Neu-Guinea; 107 p. 25 Fig. 13 (Exidia purpurascens Jungh.) Java; 127 p. 218 (Exidia purpurascens Jungh.) Java, Borneo, Sumatra; 128 p. 613 (Exidia purpurascens Jungh.) Sumatra, Borneo; 138 p. 123 (Hirneola polytricha Fr.) Englisch Neu-Guinea; 142 p. 311 (Exidia purpurascens Jungh.) Java; 163 p. 18 Java; 273 (Exidia purpurascens Jungh.) Java.
1001. A. reflexa (Berk.) Bres. 34 p. 551 Borneo; 37 p. 10 (Auricularia sordescens Ces.) Sarawak; 127 p. 214 (Phlebia rugosissima Lév.) Java; 128 p. 611 (Phlebia rugosissima Lév.) Java.
1002. A. tenuis (Lév.) 127 p. 219 (Exidia tenuis Lév.) Borneo; 128 p. 613 (Exidia tenuis Lév.) Borneo; 144 (Exidia tenuis Lév.) Java; 273 (Exidia tenuis Lév.) Java.
1003. A. tremellosa (Fr.) Hennings 40 p. 117 (Laschia tremellosa Fr.) Englisch Neu-Guinea; 43 p. 55 (Laschia tremellosa Fr.) Java; 71 p. 24 Deutsch Neu-Guinea; 96 p. 37 (Laschia tremellosa Fr.) Java; 138 p. 122 (Laschia tremellosa Fr.) Englisch Neu-Guinea; 214 p. 38 Deutsch Neu-Guinea.
1004. Tjibodasia pezizoides Holterm. 96 p. 44—48 Taf. V Fig. 20—23 Java.
1005. Höhnelomyces javanicus Weese 231 Java.

Fam. **Pilacraceae.**

1006. Pilacre Petersii Berk. et Curt. 175 p. 252 Java; B.

Tremellineae.

Fam. **Tremellaceae.**

1007. Heterochaete javanica v. Höhnel 86 p. 18 Fig. 5 Java.
1008. H. Léveillei Pat. 163 p. 117 Java; B.
1009. Sebacina incrustans Tul. 96 p. 73 Taf. IV Fig. 1—7b Java.
1010. Exidia carnosa Holterm. 96 p. 80—81 Taf. IV Fig. 12—15 Java.
1011. E. glandulosa (Bull.) Fr. 163 p. 117—118 Java.
1012. Ulocolla papillosa Holterm. 96 p. 77—78 Taf. IV Fig. 8—11e Java.
1013. Tremella elastica Zoll. 144 Java; 271 p. 380 Java; 273 Java; 67a p. 302 Java.
1014. T. fuciformis Berk. 76 p. 5, (40) 138 Java; 82 Java; 163 p. 117 Java; 221 Timor.
1015. T. luteo-rubescens Holterm. 96 p. 82-83 Taf. V. Fig. 1—13 Java.
1016. T. mesenterica Retz. 271 p. 380 Java.
1017. T. mucoroidea Pat. 163 p. 117 Pl. XXV Fig. 1—6 Java; 164 p. 100 Java.
1018. T. silvestris Holterm. 96 p. 83—84 Taf. V Fig. 14—19 Java.
1019. Gyrocephalus exoticus Pers. 176a p. 176—177 Rawak.
1020. Clavariopsis pinguis Holterm. 76 p. 6 Java; 96 p. 85—86 Taf. IV Fig. 16—20 Java.

1021. Tremellodon gelatinosus (Scop.) Fr. var. bogoriense Holterm. 76 p. 5 Java; 96 p. 76 Taf. III Fig. 13—14 Java.
1022. T. gelatinosus (Scop.) Fr. var. celebica Hennings 76 p. 5 Celebes.
1023. Septobasidium Cinchonae Rac. 192 Java; 197 p. 20—21 Fig. 13 Java.
1024. S. frustulosum (Berk. et Curt.) Pat. 192 Java; 163 p. 118—119 Java.
1025. S. frustulosum (Berk. et Curt.) Pat. var. crassum Pat. 76 p. (40) 138 Java; 163 p. 119 Java.
S. granulosum Syd. 219 p. 253 Deutsch Neu-Guinea.
1026. S. Henningsii Pat. 76 p. (40) 138 Java; 192 Java.
1027. S. humile Rac. 192 Java.
1028. S. Mompa (Tanaka) Rac. 76 p. (40) 138 (Septobasidium bogoriense Pat.) Java; 192 Java; 197 p. 21—22 Java.
1029. S. pedicellatum (Schwein.) Pat. var. album 76 p. (40) 138 Java.
1030. S. rubiginosum Pat. 76 p. (39) 137 Java; 163 p. 118 Java; 192 Java; B.
1031. Ordonia orthobadion Rac. 192 Java.
1032. Mohortia tropica Rac. 192 Java.
1033. Platygloea javanica Pat. 166 p. 190 Java.

Dacryomycetineae.

Fam. **Dacryomycetaceae.**

1034. Dacryomyces luridus Holterm. 96 p. 53—54 Taf. VII Fig. 20—25 Java.
1035. D. odoratus Holterm. 96 p. 54—55 Taf. VII Fig. 16—19 Java.
1036. D. rubidus Holterm. 96 p. 55 Taf. VII Fig. 13—15 Java.
1037. Guepinia coryneoides Hennings 76 p. 6 Java.
1038. G. discinoides Hennings et Nyman 76 p. 6 Java; 76 p. (40) 138 (Guepinia merulina (Pers.) Quélet) Java.
1039. G. ramosa Curr. 76 p. 6 Java.
1040. G. spathularia (Schw.) Fr. 9 p. 335 (Guepinia fissa Berk.) Java; 34 p. 551 Borneo; 37 p. 10 (Guepinia Palmiceps Berk.) Borneo; 37 p. 10 (Guepinia fissa Berk.) Sarawak; 47 p. 67 (Guepinia fissa Berk.) Krakatau; 74 p. 496 (Guepinia fissa Berk.) Deutsch Neu-Guinea; 76 p. 6 (Guepinia fissa Berk.) Java; 83 p. 65 Java; 107 p. 78 Fig. 41 (Cantharellus redivinus Jungh.) Java; 108 p. 289 (Cantharellus spathulatus Jungh.) Fig. 4 a, b, c, d. Java; 134 p. 956 (Guepinia fissa Berk.) Krakatau; 135 p. 1015 (Guepinia spathulata (Jungh.)) Verlateneiland.; 138 p. 123 Englisch Neu-Guinea; 142 p. 318 (Cantharellus redivinus Jungh.) Java; 142 p. 320 (Cantharellus spathulatus Jungh.) Java; 144 (Guepinia fissa Berk.) Java; 214 p. 38 (Guepinia fissa Berk.) Deutsch Neu-Guinea; 219 p. 252 Deutsch Neu-Guinea; 221 Timor; 273 (Guepinia fissa Berk.) Java.

1041. Calocera cornea (Batsch) Fr. 43 p. 56 Java; 219 p. 252 Deutsch Neu-Guinea.
1042. C. Guepinia Holterm. 96 p. 59 Taf. VII Fig. 3—6 Java.
1043. C. major Holterm. 96 p. 57 Taf. VII Fig. 1—2b Java.
1044. C. minor Holterm. 96 p. 57—58 Taf. VI Fig. 7a-d Java.
1045. C. ochroleuca Lév. 127 p. 217 Java; 128 p. 612 Java; 128 p. 612 (Cyraria oryzaeformis Jungh.) Java.
1046. C. odorata Holterm. 96 p. 56—57 Taf. VIII Fig. 1a-d Java.
1047. C. problematica Holterm. 96 p. 58 Taf. VI Fig. 6a-c Java.
1048. C. variabilis Holterm. 96 p. 59—60 Taf. VII Fig. 7—12 Java.

Exobasidiineae.

Fam. **Exobasidiaceae.**

1049. Exobasidium affine Rac. 192 Java; 197a p. 3 Java.
1050. E. javanicum Rac. 192 Java.
1051. E. Symploci fasciculatae Rac. 190 Java; B.
1052. E. Vaccinii (Fuck.) Woron. 163 p. 117 Java.
1053. E. vexans Bern. 23 p. 8 Pl. I Java.
1054. E. vulcanicum Rac. 190 Java.
1055. Kordyana Pinangae Rac. 190 Java.
1056. K. Tradescantiae (Pat.) Rac. 190 Java; B.
1057. Lelum ustilaginoides Rac. 190 Java.

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Fam. **Hypochnaceae.**

1058. Hypochnus Gardeniae Zimmerm. 262 p. 102 Fig. 2 Java.
H. ruberrimus Ces. 37 p. 10 Sarawak.
1059. Hypochnus serus (Pers.) Fr. 163 p. 116 Java; B.
1060. H. Theae Bern. 17 Java; 169 p. 47 Java.
1061. Pachysterigma grisea Rac. 190 Java; B.

Fam. **Thelephoraceae.**

1062. Tulasnella Cinchonae Rac. 192 Java; 197 p. 22—23 Java.
1063. Corticium amorphum (Pers.) Fr. 70 p. 217—218 Java.
C. Berkeleyanum Ces. 37 p. 10 Sarawak.
1064. C. calceum Fr. 76 p. (41) 139 Java; 163 p. 116 Java; B.
1065. C. ceraceum Berk. et Rav. 76 p. (41) 139 Taf. V Fig. 1 (Cerocorticium bogoriense Henn. et Nym.) Java; 76 p. (41) 139 (Cerocorticium tjibodense Hennings) Java; 91 p. 4 Java.
1066. C. cerebrinum Pat. 163 p. 116 Java.
1067. C. coeruleum Fr. 40 p. 117 Englisch Neu-Guinea; 166 p. 188 Java.

1068. C. salmonicolor Berk. et Br. 1a p. 20 (Corticium javanicum Zimmerm.) Java; 14 (Cort. jav. Zimm.) Java; 14a (Cort. jav. Zimm.) Java; 20 (Cort. jav. Zimm.) Java; 21 (Cort. jav. Zimm.) Java; 62 p. 266 (Cort. jav. Zimm.) Java; 64 (Cort. jav. Zimm.) Java; 119 p. 203 (Cort. jav. Zimm.) Java; 169 p. 137 (Cort. jav. Zimm.) Java; 194 p. 409 Fig. 1 (Cort. jav. Zimm.) Java; 195 p. 5 Fig. 1 (Cort. jav. Zimm.) Java; 196 (Cort. jav. Zimm.) Java; 197 p. 11—13 Fig. 6—12 Java; 201a p. 55 (Cort. jav. Zimm.) Java; 203 p. 59 (Cort. jav. Zimm.) Borneo (Sarawak); 206 p. 21 Pl. IV Java; 223 (Cort. jav. Zimm.) Java; 254 p. 5 (Cort. jav. Zimm.) Java; 257 (Cort. jav. Zimm.) Java; 262 p. 102—103 Fig. 3 (Cort. jav. Zimm.) Java; 264 p. 51 (Cort. jav. Zimm.) Java; 264 p. 803 (Cort. jav. Zimm.) Java; 265 p. 148 (Cort. jav. Zimm.) Java; 267 p. 51—53 Fig. 34 (Cort. jav. Zimm.) Java; 268 (Cort. jav. Zimm.) Java; 269 p. 14, 20 (Cort. jav. Zimm.) Java.

1069. C. lacteum Fr. 163 p. 116 Java.

C. laeve Fr. 40 p. 117 Englisch Neu-Guinea.

1070. C. ochraceum (Fr.) 107 p. 35 (Thelephora ochracea Fr.) Java; 142 p. 312 (Thelephora ochracea) Java.

1071. C. papyraceum (Jungh.) Fr. 107 p. 36 (Thelephora papyracea Jungh.) Java; 142 p. 312 (Thelephora papyracea Jungh.) Java.

1072. C. Theae Bern. 21 Java.

1073. Wiesnerina secunda v. Höhnel 93 p. 4 Fig. 1 Java.

1074. Peniophora Coffeae Zimm. 262 p. 102 Java.

1075. Aleurodiscus javanicus Henn. 76 p. (41) 139 Java; 83 p. 65 Java.

Hymenochaete adusta (Lév.) Bres. 221 Timor.

1076. H. attenuata (Lév.) 127 p. 212 (Stereum attenuatum Lév.) Java; 128 p. 611 (Stereum attenuatum Lév.) Java.

H. leonina Berk. et Curt. 138 p. 123 Englisch Neu-Guinea.

1077. H. noxia Berk. 25 p. 8, 10 Java; 64 Java; 67 p. 289—295 Java; 158 p. 19, 24 Java; 206 p. 19 Java.

H. phaea Berk. 40 p. 117 Englisch Neu-Guinea.

H. radiosa Hennings 74 p. 497 Deutsch Neu-Guinea; 214 p. 38 Deutsch Neu-Guinea.

1078. H. rubiginosa (Schr.) Lév. 10 p. 163 Borneo; 37 p. 10 Sarawak.

1079. H. semilugens (Kalchbrenner) Bres. 34 p. 550 Borneo.

1080. H. spadicea Berk. et Br. 76 p. (42) 140 Java.

1081. H. tjibodensis Hennings 76 p. (42) 140 Java.

1082. Bonia Winkleri (Bres.) 34 p. 551 (Mycobinia Winkleri Bres.) Borneo.

1083. Stereum affine Lév. 34 p. 550 Borneo; 127 p. 210 Java, Sumatra; 128 p. 610 Java, Sumatra.

1084. S. annosum Berk. et Br. 76 p. (41) 139 Java.

S. bellum Kunze 74 p. 497 Deutsch Neu-Guinea; 214 p. 39 Deutsch Neu-Guinea.
S. Berkeleyanum Ces. 37 p. 10 Sarawak.
S. bicolor Fr. 40 p. 117 Englisch Neu-Guinea.
S. Bolleanum Mont. 221 Timor.
S. (Apus) Boryanum Fr. 40 p. 117 Englisch Neu-Guinea.
1085. S. Bresadoleanum Lloyd 135 p. 1015 Verlateneil.
1086. S. cinereo-badium Klotzsch 176a p 175—176 (Thelephora moluccana Pers.) Rawak.
1087. S. cinereum Lév 127 p. 211 Sumatra; 128 p. 611 Sumatra.
S. complicatum Fr. 138 p. 122 Englisch Neu-Guinea.
1088. S. crenatum Lév. 33 p. 240 (Stereum princeps Jungh.) Java; 107 p. 38—40 Fig. 22 (Thelephora princeps Jungh.) Java; 127 p. 210 Stereum (Apus) princeps Lév.) Java; 127 p. 210 Java; 128 p. 610 Java; 134 p. 951 (Stereum princeps) Java; 142 p. 312 (Thelephora princeps Jungh.) Java; 163 p. 116 (Stereum princeps Jungh.) Java; 221 Timor; 273 (Thelephora princeps Jungh.) Java, Sumatra; B. (Stereum princeps Jungh.).
S. Curreyi Sacc. 219 p. 251 Deutsch Neu-Guinea.
S. cyathiforme Fr. 40 p. 117 Englisch Neu-Guinea; 138 p. 122 Englisch Neu-Guinea.
S. elegans Fr. 40 p. 117 Englisch Neu-Guinea.
1089. S. effusum Berk. 11 Aroe-eil.
S. fasciatum Fr. 138 p. 122 Englisch Neu-Guinea.
1090. S. ferrugineum Pers. 127 p. 211 Sumatra; 128 p. 610 Sumatra; 273 (Thelephora ferrugineum Pers.) Java.
S. fissum Berk. 219 p. 251 Deutsch Neu-Guinea.
1091. S. Friesi Lév. 273 (Thelephora Friesi Lév.) Java.
1092. S. glabrum Lév. 144 Java; 273 (Thelephora glabrum Lév.) Java.
1093. S. hirsutum (Willd.) Fr. 76 p. (41) 139 Java; 127 p. 211 Java; 128 p. 610 Java; 144 Java; 144 (Thelephora hirsutum Willd.) Java; 163 p. 116 Java; 273 (Thelephora hirsutum Willd.) Java.
1094. S. induratum Berk. 76 p. (41) 139 Java; 11 Aroe-eil.
1095. S. involutum Klotzsch 10 p. 163 Borneo; 40 p. 117 Englisch Neu-Guinea.
1096. S. Junghuhnii Fr. 61a p. 109 Java; 107 p. 40 (Thelephora stricta Jungh.) Java.
1097. S. (Apus) Kurzianum Cooke 43 p. 55 Java.
1098. S. lobatum Fr. 9 p. 335 Java; 40 p. 117 Englisch Neu-Guinea; 70 p. 218 Java; 71 p. 24 Java und Deutsch Neu-Guinea; 76 p. 6, (41) 139 Java; 83 p. 65 Java; 127 p. 211 Java, Sumatra; 128 p. 610 Java, Sumatra; 141a p. 191-192 (Thelephora lobata Kunze) Java; 144 Java; 214 p. 39 Deutsch Neu-Guinea; 221 Timor.
1099. S. luteo-badium (Fr.) 273 (Thelephora luteo-badium Fr.) Bima.

1100. S. Malloti Berk. 83 p. 65 Java.
S. Mellisii B. 40 p. 117 Englisch Neu-Guinea.
1101. S. muscicolum Pat. 163 p. 116 Taf. XXIV Fig. 14-17 Java.
1102. S. obliquum Mont. et Berk. 9 p. 334-335 Java; 129a p. 147 (Thelephora obliqua Lév.) Java; 144 Java; 219 p. 251 Deutsch Neu-Guinea; 273 (Thelephora obliqua Mont. et Berk.) Java.
S. ochroleucum Fr. 37 p. 10 Sarawak.
1103. S. oillosum (Lév.) 273 (Thelephora (Stereum) oillosum) Lév.) Java.
1104. S. Ostrea (Nees.) Bres. 26 (Thelephora Ostrea Bl. et Nees) Java; 34 p. 550 (Stereum Ostrea f. concolor Jungh.) Borneo; 47 p. 68 (Stereum concolor Jungh.) Krakatau, Verlateneil.; 47 p. 68 Krakatau, Verlateneil.; 107 p. 37 (Thelephora Ostrea Nees.) Java; 107 p. 38 (Thelephora concolor Jungh.) Java; 127 p. 211 Java; 128 p. 610 Java; 134 p. 951 Java; 142 p. 312 (Thelephora concolor Jungh.) Java; 142 p. 312 (Thelephora Ostrea Nees) Java.
1105. S. perlatum Berk. 47 p. 68 Verlateneil.; 134 p. 965 Verlateneil.
1106. S. purpureum Fr. 127 p. 211 Java; 128 p. 610 Java.
1107. S. rigidum Lév. 127 p. 211 Java; 128 p. 611 Java.
1108. S. sanguinolentum (Alb. et Schw.) Fr. 76 p. (41) 139 Java.
1109. S. spectabile Mey. 163 p. 116 Java; B.
S. submembranaceum Hennings 74 p. 497 Deutsch Neu-Guinea; 219 p. 39 Deutsch Neu-Guinea.
1110. S. tenellum Kalchbr. 220 p. 3 Ambon.
1111. S. tjibodense Hennings 76 p. (42) 140 Java.
S. (Mes.) Thozetii B. 40 p. 117 Englisch Neu-Guinea.
S. versicolor Fr. 138 p. 122 Englisch Neu-Guinea.
1112. S. villosum Lév. 127 p. 213 Java; 128 p. 611 Java.
1113. Thelephora acanthacea Lév. 129a p. 147 Java; 144 Java; 163 p. 115 Java; 273 Java; B.
1114. T. (Merisma) aciculare Jungh. 127 p. 207 Java; 128 p. 609 Java; 144 (Merisma aciculare Lév.) Java; 273 Java.
1115. T. allutacea Pers. 144 Java; 273 Java.
1116. T. (Merisma) Ambinensis Lév. 127 p. 207 Ambon; 128 p. 609 Ambon; 273 Java.
1117. T. anthocephala Fr. 43 p. 56 Java.
1118. T. arida Fr. 107 p. 36 Java; 142 p. 312 Java.
1119. T. (?) acroleuca Pat. 166 p. 188 Java.
1120. T. badia Kunze 273 Java.
1121. T. bidentata Pat. 163 p. 115 Taf. XXIV Fig. 11-13 Java.
T. caperata Berk. et Mont. 71 p. 24 Deutsch Neu-Guinea; 214 p. 39 Deutsch Neu-Guinea.
1122. T. (Merisma) capillaris Lév. 127 p. 208 Java; 128 p. 609 Java; 273 (Merisma capillare Lév.) Java.
1123. T. (Merisma) Cladonia Schwein. 127 p. 207 Ambon.

1124. T. coccinea Jungh. 107 p. 36 Java; 142 p. 312 Java.
1125. T. compressum Lév. 273 (Merisma compressum Lév.) Java.
1126. T. discolor Zoll. et Mor. 271 p. 384 (Himantia Discolor Zoll. et Mor.) Java.
1127. T. dolosa Lév. 127 p. 209 Java; 128 p. 610 Java.
1128. T. fusco-pallida Jungh. 107 p. 34 (Himantia fusco-pallida) Java.
1129. T. implexum Lév. 144 Java; 273 Java.
T. lamellata B. 40 p. 117 Englisch Neu-Guinea.
T. multipartita Fr. 37 p. 10 Sarawak.
1130. T. nondumevoluta Lév. 273 Java.
1131. T. paradoxa Lév. 127 p. 206 Java; 128 p. 609 Java.
1132. T. radicans Berk. 213a p. 525 Java. (?)
T. regularis Schw. 40 p. 117 Englisch Neu-Guinea.
1133. T. Serrei Pat. et Har. 167 p. 116 Java.
1134. T. striata Jungh. 107 p. 40 Java; 142 p. 312—313 Java.
1135. T. spongiosa Lév. 273 Java.
1136. T. surinamensis Lév. 273 Java.
1137. T. viridula Bres. 33 p. 240 Java.
1138. T. tjibodensis Hennings 76 p. (42) 140 Java.
1139. T. Zollingeri Sacc. 67a p. 304 (Thelephora spec. nov.) Java; 213a p. 530 Java.
1140. Cladoderris Blumei Lév. 127 p. 213 Java; 128 p. 611 Java.
1141. C. crassa Fries 76 p. 4 Celebes; 219 p. 251 Deutsch Neu-Guinea.
1142. C. dendritica (Pers.) Berk. 10 p. 163 Borneo; 34 p. 550 Borneo; 37 p. 10 Taf. IV Fig. Sarawak; 40 p. 117 Englisch Neu-Guinea; 71 p. 25 Deutsch Neu-Guinea; 74 p. 498 Deutsch Neu-Guinea; 138 p. 122 Englisch Neu-Guinea; 166 p. 188 Java; 176a p. 176 (Thelephora dendritica Pers.) Rawak; 214 p. 40 Deutsch Neu-Guinea.
1143. C. elegans Fr. 108 p. 290 Fig. 7 (Cymatoderma elegans Jungh.) Java; 127 p. 206 (Cymatoderma elegans Jungh.) Java, Sumatra; 128 p. 609 (Cymatoderma elegans Jungh.) Sumatra; 142 p. 320 (Cymatoderma elegans Jungh.) Java; 163 p. 115 Java; 273 (Cymatoderma elegans Jungh.) Java, Sumatra.
1144. C. formosa Lév. 127 p. 214 Java; 128 p. 611 Java; 144 Java; 273 Java.
1145. C. infundibuliformis Fr. 134 p. 951 Java.
C. Schumanniana Hennings 71 p. 25 Deutsch Neu-Guinea; 214 p. 40 Deutsch Neu-Guinea.
Beccariella insignis Ces. 37 p. 10 Sarawak.
Craterellus hypolyssoides Ces. 37 p. 10 Sarawak.
C. spathularius 37 p. 10 Sarawak.
1146. Phlebophora rugulosa Lév. 273 Java.
1147. P. silvestris (Holterm.) 97 p. 104 Taf. XI Fig. 2a-d (Van Romburghia silvestris Holterm.) Java.
1148. P. Solmsiana Hennings 33 p. 238 Java; 76 p. 7, (42) 140 Java.

1149. Cyphella auricularioides Hennings 76 p. 7 Java.
1150. C. byssacea Hennings et Nyman 76 p. 7 Java.
1151. C. candida Jungh. 107 p. 28 Fig. 16 Java; 142 p. 311 Java.
1152. C. crucibuliformis Lév. 273 Java.
1153. C. integra Zoll. et Mor. 273 Java.
1154. C. Musae Jungh. 107 p. 28 Fig. 25 Java; 142 p. 311 Java.
1155. C. reniformis Pat. 163 p. 115 Java.
C. scariosa Ces. 37 p. 11 Sarawak.
C. theiacantha Syd. 219 p. 253 Deutsch Neu-Guinea.
1156. C. villosa (Pers.) Karst. 107 p. 29 (Peziza villosa Pers.) Java; 142 p. 311 (Peziza villosa Pers.) Java; 219 p. 253 Deutsch Neu-Guinea.
1157. Discocyphella marasmioides Hennings et Nyman 76 p. (43) 141 Java.
Podoscypha alutacea Bres. 219 p. 251 Taf. I B Deutsch Neu-Guinea.

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1158. Typhula hyalina Jungh. 107 p. 32 Fig. 18 Java; 142 p. 312 Java.
1159. Physalacria Bambusae v. Höhnel 86 p. 16 Java.
1160. Clavaria abietina Pers. 128 p. 612 Java.
1161. C. alcicornis Zoll. et Mor. 67a p. 302—303 Java; 129a p. 155 Java; 144 Java; 271 p. 382 Java; 273 Java.
1162. C. amethystina Bull. 67a p. 302 Java; 271 p. 381 Java.
1163. C. amoena Zoll. 67a p. 302 Java; 144 Java; 271 p. 380 Java.
1164. C. byssiseda Pers. 67a p. 302 Java; 271 p. 381 Java.
1165. C. capillaris Lév. 144 Java.
1166. C. compressa (Lév.) 129a p. 153 (Eriocladus compressus Lév.) Java; 144 Java.
1167. C. corniculata Schaeff. 144 Java; 271 p. 382 Java; 273 Java.
1168. C. coronata Zipp. 127 p. 215 Java; 128 p. 612 Java.
1169. C. cristata Pers. 107 p. 32 Java; 109 p. 368 Java; 142 p. 312 Java.
1170. C. cristulata Hennings et Nyman. 76 p. 8 Java.
1171. C. Dozyii Lév. 127 p. 216 Java; 128 p. 612 Java.
1172. C. echinospora Berk. et Br. 76 p. (43) 141 Java; 219 p. 252 Deutsch Neu-Guinea.
1173. C. fasciculata Pers. 67a p. 302 (Clavaria phoenicea Zoll.) Java; 144 Java; 271 p. 381 Java; 273 Java.
1174. C. filiformis Hennings et Nyman 76 p. 8 Java.
1175. C. Fleischeriana Hennings 76 p. 9 Java.
1176. C. fragilis Fr. 43 p. 56 Java.
1177. C. furcata Hennings et Nyman 76 p. 9 Java.

1178. C. fusiformis Sow. 33 p. 240 Java; 219 p. 253 Deutsch Neu-Guinea.
1179. C. gracillima Wakker 230 Java.
1180. C. helvola Pers. 273 Java.
1181. C. implexa Lév. 129a p. 154 Java.
1182. C. Janseiana Holterm. 96 p. 103—104 Taf. XI Fig. 1a-c Java.
1183. C. Kunzii Fr. 144 Java.
1184. C. laeta Berk. et Br. 70 p. 218 Sumatra; 76 p. 8 Sumatra.
1185. C. liguloides Hennings et Nyman. 76 p. 8 Java.
1186. C. lilacina Jungh. 127 p. 216 Java; 128 p. 612 Java.
1187. C. nigra Lév. 127 p. 213 Sumatra; 128 p. 612 Sumatra.
1188. C. Nymaniana Hennings 76 p. 9 Java.
1189. C. phaeocladia Pat. 166 p. 189 Java.
1190. C. purpurea Fl. Dan. 273 Java.
1191. C. spiralis Jungh. 107 p. 32 Fig. 19 Java; 142 p. 312 Java.
1192. C. stricta (Pers.) 109 p. 368 Java.
1193. C. strigosa Hennings et Nyman 76 p. 8 Java.
1194. C. subaurantiaca Hennings 76 p. 8 Java.
C. subfistulosa Hennings 74 p. 498 Deutsch Neu-Guinea; 214 p. 40 Deutsch Neu-Guinea.
1195. C. tenuissima Lév. 129a p. 156 Java.
1196. C. tjibodensis Hennings 76 p. (43) 141 Java.
1197. C. trichotoma Lév. 127 p. 216 Borneo; 128 p. 612 Borneo.
1198. C. typhoidea Hennings 76 p. (43) 141 Java.
1199. C. umbrina Lév. 129a p. 155 Java; 144 Java; 273 Java.
1200. C. Zippelii Lév. 33 p. 239 Java; 86 p. 15—16 Java; 90 p. 2 (Clavaria cyanocephala Berk. et Curt.) Java; 127 p. 215 Java; 128 p. 612 Java; 163 p. 116 Java; 166 p. 189 (Clavaria aeruginosa Pat.) Java; B.
1201. C. Zollingeri Lév. 129a p. 155 Java; 144 Java; 273 Java.
1202. Pterula capillaris (Lév.) 127 p. 208 (Merisma capillaris Lév.) Java.
1203. P. dendroidea (Jungh.) Fr. 107 p. 33 Fig. 20 (Clavaria dendroides Jungh.) Java; 127 p. 209 (Thelephora dendroides Jungh.) Java; 128 p. 609 (Thelephora dendroides Jungh.) Java; 142 p. 312 (Clavaria dendroides Jungh.) Java; 144 (Merisma dendroides Lév.) Java; 163 p. 115 Java; B.
1204. P. fulvescens Bres. 34 p. 551 Borneo.
P. grandis Syd. 219 p. 252 Fig. I E Deutsch Neu-Guinea.
1205. P. hirsuta Hennings 76 p. 9 Java.
1206. P. multifida Fr. 76 p. 9 Java.
1207. P. pungens Lév. 76 p. (45) 143 Java; 129a p. 157 (Merisma pungens Lév.) Java; 144 (Merisma pungens Lév.) Java; 273 (Merisma pungens Lév.) Java.
P. Timorensis Torrend 221 Timor.

1208. Lachnocladium aciculare Jungh. et Lév. 127 p. 207 Java.
1209. L. albidum Pat. 166 p. 188 Java.
1210. L. articulatum Hennings 76 p. (44) 142 Java.
1211. L. corniculariodes Hennings 76 p. (45) 143 Java.
1212. L. echinosporum Bres. 34 p. 551 Borneo.
1213. L. Englerianum Henn. 76 p. 8, (44) 142 Java, Celebes.
1214. L. funale (Lév.) Sacc. 127 p. 208 (Thelephora funalis Lév.) Java; 128 p. 609 (Thelephora funalis Lév.) Java.
1215. L. furcellatum Lév. 40 p. 117 Englisch Neu-Guinea; 70 p. 218 Sumatra; 76 p. 8 Sumatra, p. (44) 142 Java; 83 p. 65 Java.
1216. L. Janseanum (Holtermann) Hennings 76 p. (45) 143 Java.
L. Lauterbachii Hennings 71 p. 25 Deutsch Neu-Guinea; 214 p. 40 Deutsch Neu-Guinea; 219 p. 252 Deutsch Neu-Guinea.
1217. L. palmatum Hennings 76 p. (44) 142 Java.
1218. L. pteruliformis Hennings 76 p. (45) 143 Java.
1219. L. ramalinoides Hennings 76 p. (45) 143 Java.
1220. L. rameale Berk. et Br. 141 p. 266 Holländisch Neu-Guinea.
1221. L. Sarasinii Hennings 76 p. 7 Taf. I Fig. 7 Celebes.
1222. L. scoparium (Lév) Sacc. 127 p. 207 (Thelephora scoparia Lév.) Java; 128 p. 609 (Thelephora scoparia Lév.) Java.
1223. L. simplex Henn. 76 p. (44) 142 Java.
1224. L. subarticulatum Hennings 76 p. (44) 142 Java.
1225. L. zandbaiense Hennings et Nyman 76 p. (44) 142 Java.
1226. Sparassis Wentii Oud. 157 Java; L. (nicht i. lit.)
Grandinia glabrescens Berk. et Rav. 37 p. 9 Sarawak.
1227. G. microthelia Lév. 127 p. 205 Java; 128 p. 608 Java.
Odontia cremorina Bres. 219 p. 251 Deutsch Neu-Guinea.
1228. O. cretacea Hennings et Nyman 76 p. (45) 143 Java.
O. (?) farinacea Ces. 37 p. 9 Sarawak.
1229. Phlebia rugosissima Lév. 127 p. 214 Java.
1230. Lopharia javanica Hennings et Nyman 76 p. (46) 144 Java.
1231. Radulum mirabile Berk. et Br. 37 Borneo.
1232. R. subquercinum Hennings 76 p. (46) 144 Java.
Hydnum Boveanum Mont. 221 Timor.
1233. H. (Dryodon) caperatum Pat. 163 p. 114 Java.
H. Cesati Berk. 37 p. 9 Sarawak.
1234. H. citrinum Zoll. et Mor. 271 p. 386 Java; 273 Java.
1235. H. (Hericium) coralloides Scop. 163 p. 114 Java.
H. ferrugineum Fr. 37 p. 9 Sarawak.
1236. H. fuscum Pers. 127 p. 205 Java; 128 p. 608 Java.
1237. H. (Acia) glaucum Pat. 163 p. 115 Java.
1238. H. helvolum Zipp. 127 p. 204 Java; 128 p. 608 Java.
1239. H. (Radulum) herpotodon Lév. 129a p. 145 Java; 144 Java; 273 Java.

1240. H. (Dryodon) javanicum Pat. 163 p. 114 Java.
H. (Apus) luteovirens Ces. 40 p. 117 Englisch Neu-Guinea.
H. neo-guineense Hennings 71 p. 25 Deutsch Neu-Guinea; 214 p. 41 Deutsch Neu-Guinea.
1241. H. niveum Pers. 129 p. 145 Java; 144 Java; 273 Java,
1242. H. ochraceum Pers. 47 p. 67 Krakatau; 129a p. 145 Java; 134 p. 965 Krakatau; 144 Java; 273 Java.
1243. H. phaeodon Lév. 129b p. 125 Java.
1244. H. rawakense Pers. 37 p. 9 Sarawak; 71 p. 25 Deutsch Neu-Guinea; 176a p. 175 Rawak; 214 p. 41 Deutsch Neu-Guinea.
1245. H. roseo-maculatum Henn. et Nyman 76 p. 10 Java.
1246. H. rufulum Lév. 127 p. 205 Java; 128 p. 608 Java; 273 Java.
1247. H. Sarasinii Hennings 76 p. 9 Taf. I Fig. 2 Java.
1248. H. sclerodontium Mont. et Berk. 9 p. 333 Java.
1249. H. spathulatum (Schw.) 134 p. 951 Java.
1250. H. tenuiculum Lév. 129a p. 145 Java; 144 Java; 273 Java.
Irpex depauperatus Berk. et Br. 219 p. 251 Deutsch Neu-Guinea.
1251. I. flavus Klotzsch 10 p. 164 Borneo; 36 p. 508 Java; 40 p. 117 Englisch Neu-Guinea; 76 p. (47) 145 (Polystictus flavus Jungh.) Java; 107 p. 46 Fig. 25 (Polyporus flavus Jungh.) Java; 127 p. 193 (Polyporus flavus Jungh.) Sumatra; 128 p. 605 (Polyporus flavus Jungh.) Sumatra; 132 p. 3 (Polystictus flavus Jungh.) Java; 141a p. 181 (Polyporus flavus Jungh.) Java; 142 p. 313 (Polyporus flavus Jungh.) Java; 163 p. 40 (Trametes flava Klotzsch) Java; 221 Timor.
1252. I. flavus (Jungh.) Klotzsch var. orbicularis Jungh. 107 p. 48 Fig. 26 Java.
I. pellicula (Jungh.) Bres. 221 Timor.
1253. Sistotrema autochthon Mont. et Berk. 9 p. 332—333 Java; 144 Java; 273 Java.
1254. S. citreolum Jungh. 127 p. 205 Java; 128 p. 608 Java.

Fam. **Polyporaceae**.

1255. Solenia calamicola Hennings et Nyman 76 p. 7 Java.
1256. S. subfasciculata Hennings et Nyman 76 p. 7 Java.
1257. S. zandbaiensis Hennings et Nyman 76 p. (42) 140 Java.
1258. Merulius Corium Fr. 166 p. 187 Java.
M. Crocicreas Ces. 37 p. 9 Sarawak.
1259. M. cuticularis Lév. 273 Java,
1260. M. similis Berk. et Br. f. pileata 36 p. 508 Java.
1261. Poria appositus (Lév.) 129a (Polyporus appositus Lév.) p. 14 Java; 144 (Polyporus appositus Lév.) Java; 273 (Polyporus appositus Lév.) Java.
P. Archeri Berk. 219 p. 250 Deutsch Neu-Guinea.

1262. P. borbonica Pat. 36 p. 505 Java.
1263. P. byssogena (Jungh.) 107 p. 43 Fig. 23 (Polyporus byssogenus Jungh.) Java; 132 p. 2 (Polyporus byssogenus Jungh.) Java; 134 p. 951 Java; 142 p. 313 (Polyporus byssogenus Jungh.) Java.
P. corticola Fr. 40 p. 117 Englisch Neu-Guinea.
1264. P. fuligo (Berk. et Br.) Cooke 36 p. 504 Java.
1265. P. hyalina (Berk.) Cooke 36 p. 505 Java.
1266. P. hypolateritia 25 p. 8 Java; 158 p. 19—24 Java.
P. interrupta Berk. et Br. 219 p. 250 Deutsch Neu-Guinea.
P. Ledermannii Syd. 219 p. 250 Deutsch Neu-Guinea.
P. Lindbladii Berk. 40 p. 117 Englisch Neu-Guinea.
P. luctuosa (Ces.) 37 p. 7 (Polyporus luctuosa Ces.) Sarawak.
P. membranicincta Berk. 219 p. 250 Deutsch Neu-Guinea.
1267. P. medulla-panis Pers. 36 p. 505 Java.
P. mellea Sacc. 138 p. 122 Englisch Neu-Guinea.
1268. P. nitida Pers. 36 p. 505 Java.
1269. P. pellicula Jungh. 107 p. 44 Java; 142 p. 313 Java.
1270. P. Radula (Pers.) Fr. 76 p. (46) 144 Java.
P. Ravenalae (Berk. et Br.) 37 p. 6 (Polyporus Ravenalae Berk. et Br.) Sarawak.
P. rufitincta Berk. et Br. 219 p. 250 Deutsch Neu-Guinea.
P. sarawacensis (Berk.) 37 p. 7 (Polyporus sarawacensis Berk.) Sarawak.
1271. P. subambigua Bres. 36 p. 505 Java.
1272. P. vulgaris Fr. 18 p. 313 (Polyporus vulgaris Fr.) Java; 107 p. 42 (Polyporus vulgaris Fr.) Java.
1273. P. roseo-albus Jungh. 107 p. 43 (Polyporus roseo-albus Jungh.) Java; 133a p. 284 (Fomes roseo-albus Jungh.) Java; 142 p. 313 (Polyporus roseo-albus Jungh.) Java.
1274. Fomes atro-albus Hennings 36 p. 496 Java; 76 p. (46) 144 Java; 133a p. 219 Fig. 574 Java.
F. bistratosus Berk et Cooke 40 p. 116 Englisch Neu-Guinea.
1275. F. calcitratus Berk. et Curt. 33 p. 238 Java; 221 Timor.
1276. F. caliginosus Berk. 37 p. 5—6 Sarawak; 40 p. 116 Englisch Neu-Guinea; 47 p. 67 Krakatau; 76 p. 10 Celebes; 134 p. 965 Krakatau.
1277. F. caryophylli (Rac.) Bres. 36 p. 498 Java; 133a p. 254—255 Java; 190 (Trametes caryophylli Rac.) Java.
1278. F. Cesatianus Henn. 133a p. 279 Borneo.
1279. F. conchatus (Pers.) Fr. 74 p. 499 Deutsch Neu-Guinea; 76 p. (47) 145 Java; 138 p. 121 Englisch Neu-Guinea; 214 p. 42 Deutsch Neu-Guinea.
F. connatus Fr. 40 p. 116 Englisch Neu-Guinea.
1280. F. cremorinus Cesati 133a p. 279 Borneo.
F. Curreyi Sacc. 138 p. 121 Englisch Neu-Guinea.
1281. F. fastuosus Lév. 36 p. 497 Java.

1282. F. ferreus Berk. 10 p. 163 Borneo; 40 p. 116 Englisch Neu-Guinea.
1283. F. fomentarius (Lév.) Fr. 40 p. 116 Englisch Neu-Guinea; 107 p. 63 (Polyporus fomentarius Lév.) Java; 142 p. 315 (Polyporus fomentarius Fr.) Java.
1284. F. furcatus Jungh. 107 p. 69 Fig. 35 (Polyporus furcatus Jungh.) Java; 132 p. 3 (Polyporus furcatus Jungh.) Java; 133a p. 280 Java; 142 p. 316 (Polyporus furcatus Jungh.) Java; L.
1285. F. glabrescens Berk. 36 p. 496 Java.
F. hemitephrus Berk. 40 p. 116 Englisch Neu-Guinea.
1286. F. Höhnelii Bres. 36 p. 499 Java; 133a p. 281 Java.
1286a. F. holosclerus Berk. 10 p. 163 Borneo; 40 p. 116 Englisch Neu-Guinea.
1287. F. hornodermus Mont. 133a p. 214—215 Fig. 570 Java.
1288. F. igniarius (Lév.) Fr. 107 p. 63 (Polyporus igniarius Lév.) Java; 142 p. 315 (Polyporus igniarius) Java; 271 p. 388 (Polyporus igniarius Fr.) Java.
F. incrassatus Berk. 40 p. 116 Englisch Neu-Guinea; 138 p. 121 Englisch Neu-Guinea.
F. inflexibiles Berk. 40 p. 116 Englisch Neu-Guinea.
1289. F. inflexibilis Berk. var. javanicus 36 p. 498 Java.
1290. F. Kermes Berk. et Br. 76 p. (47) 145 (Polyporus ochrocroceus Hennings et Nyman) Java; 133 p. 2 (Fomes albo-marginatus Zipp.) Java; 133a p. 278 (Fomes albo-marginatus) Java, p. 231 und 283 (Fomes ochrocroceus) Java.
1291. F. Koningsbergii Lloyd 133a p. 270 Java; 134 p. 951 Java; B.
1292. F. lamaensis (Murr.) Sacc. 133a p. 245 Java; L.
1293. F. latissimus Bres. 35 p. 75 Java.
1294. F. ligneus Berk. 76 p. (47) 145 Java.
1295. F. lignosus (Kl.) Bres. 134 p. 951 (Polyporus lignosus) Java; 219 p. 250 Deutsch Neu-Guinea; 36 p 496 Java; 40 p. 116 (Polyporus Auberianus Mont.) Englisch Neu-Guinea; 74 p. 500 (Polyporus Auberianus Mont.) Deutsch Neu-Guinea; 76 p. (46) 144 (Fomes Auberianus Mont.) Java; 83 p. 65 (Fomes Auberianus Mont.) Java; 138 p. 121 (Polyporus Auberianus Mont.) Englisch Neu-Guinea; 163 p. 111 (Fomes Auberianus Mont.) Java; 214 p. 43 (Polyporus Auberianus Mont.) Deutsch Neu-Guinea; B (Polyporus Auberianus Mont).
F. longipes Lév. 40 p. 116 Englisch Neu-Guinea.
F. loricatus P. 40 p. 116 Englisch Neu-Guinea.
1296. F. Gregorii Smith 36 p. 497 (Fomes aulaxinus Bres.) Java; 133a p. 278 Java.
F. mastoporus Lév. 37 p. 4 Sarawak.
1297. F. melanodermus Pat. 36 p. 496 Java; 133a p. 261 Java; 163 p. 113 (Xanthochrous melanodermus Pat.) Java.

1298. F. melanodermus Pat. var. tomentosa Bres. 36 p. 497 Java.
1299. F. melanoporus (Mont.) Cooke 36 p. 499 Java; 37 p. 6 (Polyporus melanoporoides Ces.) Sarawak; 133a p. 240 Java; 138 p. 120 Borneo.
1300. F. minutulus Hennings 34 p. 549 Borneo; 133a p. 251 Fig. 593, Borneo.
F. nigrolaccatus Cooke 40 p. 116 Englisch Neu-Guinea.
1301. F. ochroleucus Berk. 135 p. 1015 Verlateneiland; 166 p. 187 Java; 221 Timor.
1302. F. opacus Berk. 10 p. 163 Borneo.
1303. F. pachyphloeus Pat. 131h p. 36 Fig. 361 Java; 133a p. 260—261 Fig. 600 Java. 163 p. 111 Java; L.
1304. F. pachyphloeus Pat. var. stipitatus Bres. 33 p. 238 Java.
1305. F. Pala (Lév.) 133 p. 4 (Polyporus Pala) Java.
1306. F. pectinatus (Klotzsch) Cooke. 9 p. 332 (Polyporus pullus Mont. et Berk.) Java; 36 p. 497 Java; 36 p. 499 (Fomes Korthalsii (Lév.) Cooke) Java; 37 p. 6 (Polyporus Hasskarlii Lév.) Sarawak; 40 p. 116 Englisch Neu-Guinea; 40 p. 117 (Polystictus Hasskarlii Lév.) Englisch Neu-Guinea; 71 p. 26 Deutsch Neu-Guinea; 127 p. 190 (Polyporus Hasskarlii Lév.) Java; 127 p. 191 (Polyporus Korthalsii Lév.) Sumatra; 128 p. 604 (Polyporus Hasskarlii Lév.) Java; 128 p. 600 (Polyporus sideroides Lév.) Sumatra; 128 p. 604 (Polyporus Korthalsii Lév.) Sumatra; 131g p. 161 (Polyporus Korthalsii Lév.) Java; 133 p. 3 (Polyporus Hasskarlii Jungh.) Java; 95c p. 38—39 (F. Korthalsii (Lév.) Cooke) Java; 133 p. 5 (Polyporus sideroides Korth.) Java; 133a p. 253 (Fomes pullus) Java; 133a p. 281 (Fomes Hasskarlii) Java; 133a p. 277, 282 (Fomes Korthalsii) Java; 144 (Polyporus pullus Mont. et Berk.) Java; 144 (Polyporus Korthalsii Lév.) Java; 163 p. 113 (Xanthochrous Korthalsii Lév.) Java; 214 p. 43 Deutsch Neu-Guinea; 273 (Polyporus Korthalsii Lév.) Java; 273 (Polyporus pullus Mont. et Berk.) Java; L.
1307. F. perpusillus (Pers.) 133 p. 4 Java.
1308. F. piceus Ces. 37 p. 5 Sarawak; 133a p. 284 Borneo.
1309. F. polyzonus (Pers.) 133a p. 269—270 Java.
1310. F. pusiolus Ces. 36 p. 494 Java; 37 p. 6 Sarawak.
F. pyrrhocreas Cooke 39 p. 11 Englisch Neu-Guinea; 40 p. 117 Englisch Neu-Guinea.
1311. F. rimosus (Berk.) 10 p. 163 (Polyporus rimosus) Borneo; 70 p. 219 Java; 76 p. 10 Java.
1312. F. roseoporus (Pat.) 133a p. 215 Java; 163 p. 111 Java; B. (Polyporus roseoporus Pat.)
1313. F. rufo-flavens Berk et Curt. 37 p. 5 Sarawak; 133a p. 278 (Fomes canalicatus Pat.) Java.

F. sanguinarius Klotzsch 37 p. 6 Sarawak.

1314. F. scalaris Berk. 40 p. 116 Englisch Neu-Guinea; 133a p. 238 Fig. 585 Java.

1315. F. semitosus Berk. 4 p. 334 Java; 37 p. 5 Sarawak; 206 p. 15 Java; 213 Java.

1316. F. senex Nees 40 p. 116 Englisch Neu-Guinea; 133a p. 259 Fig. 598 Java; 138 p. 121 Englisch Neu-Guinea.

1317. F. subtornatus Murr 133a p. 269 Java.

F. superpositus Berk. 40 p. 116 Englisch Neu-Guinea.

1318. F. testaceo-fuscus Bres. 36 p. 498 Java.

1319. F. ulmarius Fr. 36 p. 496 Java.

1320. F. velutinus (Pers.) Bres. 36 p. 498 Java; 37 p. 6 Sarawak; 107 p. 59 (Polyporus velutinus) Java; 142 p. 315 (Polyporus velutinus Pers.) Java.

1321. F. velutinus (Pers.) Bres. var. stratosus Jungh. 107 p. 59 (Polyporus velutinus var. stratosus Jungh.) Java.

1322. F. velutinus (Pers.) Bres. var. lutescens Pers. 127 p. 186 (Polyporus velutinus var. lutescens Pers.) Java; 128 p. 602 (Polyporus velutinus var. lutescens Pêrs.) Java.

1323. F. zelandicus Cooke 36 p. 497 Java.

1324. Ganoderma amboinense (Lam.) Pat. 10 p. 162 (Polyporus amboinensis Fr.) Borneo; 33 p. 238 Java; 34 p. 549 Borneo; 70 p. 219 (Fomes amboinensis (Lam.) Fr.) Java, N. Celebes, Deutsch Neu-Guinea; 71 p. 26 Deutsch Neu-Guinea; 76 p. 10 (Fomes amboinensis (Linn.) Fr.) Java, N. Celebes, Holländisch Neu-Guinea; 76 p. (47) 145 (Fomes amboinensis (Lam.) Fr.) Java; 83 p. 65 (Fomes amboinensis (Lam.)) Java; 107 p. 67 (Polyporus amboinensis Fr.) Java; 127 p. 182 (Polyporus amboinensis Fr.) Java; 141a p. 176 (Polyporus amboinensis Fr.) Java; 142 p. 316 (Polyporus amboinensis Fr.) Java 163 p. 113 Java; 204 p. 128 Taf. LVII Fig. 1—3 und E (Fungus elatus cochlearis) Ambon; 214 p. 41 (Fomes amboinensis (Lam.) Fr.) Deutsch Neu-Guinea; 220 p. 3 (Polyporus amboinensis Fr.) Deutsch Neu-Guinea; 273 (Polyporus amboinensis Nees.) Java; B.

1325. G. amboinense (Lam.) Pat. var. Pisachapani Nees. 48a p. 1—8 Taf. (Polyporus Pisachapani Nees) Java; 67a p. 304 (Polyporus Pisachapani Nees) Java; 107 p. 68 (Polyporus amboinensis var. Pisachapani Nees) Java; 131g p. 107 (Ganoderma Pisachapani) Java; 271 p. 387 (Polyporus Pisachapani Nees) Java.

1326. G. applanatum (Fr.) Bres. 36 p. 502 Java; 10 p. 163 (Polyporus applanatus Fr.) Borneo; 47 p. 67 (Fomes applanatus (Pers.)) Krakatau; 134 p. 965 (Fomes applanatus) Krakatau.

1327. G. asperulatum Murrill 34 p. 549 Borneo.

1328. G. australe Fr. 10 p. 163 (Polyporus australis Fr.) Borneo; 11 p. 44 (Polyporus australis var. applanata) Ternate; 40 p. 116 (Fomes australis) Englisch Neu-Guinea; 70 p. 219 (Fomes australis Fr.) Java, Bonin eil.; 71 p. 26 Deutsch Neu-Guinea; 74 p. 499 (Fomes australis Fr.) Deutsch Neu-Guinea; 76 p. 10 (Fomes australis Fr.) Java, Celebes; 127 p. 189 (Polyporus australis Fr.) Java; 128 p. 603 (Polyporus australis Fr.) Java; 128 p. 603 (Polyporus dubius Jungh.) Java; 133a p. 283 (Fomes australis Fr.) Java; 138 p. 120 (Fomes australis Sacc.) Borneo; 141a p. 179 (Polyporus australis Fr.) Java; 144 (Polyporus australis) Java; 163 p. 114 Java; 214 p. 41 (Fomes australis Fr.) Deutsch Neu-Guinea; 273 (Polyporus australis Fr.) Java.

G. cervinum Bres. 219 p. 249—250 Taf. I A Deutsch Neu-Guinea.

1329. G. cochlear (Nees) Murr. 26 (Polyporus Cochlear Blume et Nees.) Java; 131g. p. 103 Java; 273 (Polyporus cochlear Nees) Java; B; L.

1330. G. fasciatum Lév. 163 p. 114 Java.

1331. G. gibbosum (Nees) Pat. 26 (Polyporus gibbosus Nees) Java; 107 p. 66 (Polyporus gibbosus Nees) Java; 134 p. 951 (Polyporus gibbosus) Java; 142 p. 316 (Polyporus gibbosus Nees) Java; 163 p. 114 Java.

1331a. G. gibbosum (Nees) Pat. var. pulchella 36 p. 501 Java.

1332. G. Höhnelianum Bres. 36 p. 502 Java.

1333. G. javanicum Lév. 131g p. 109 Java; 163 p. 112 (Phaeolus Javanicus Pat.) Java; 163 p. 113 Taf. XXIV Fig. 8—10 (Xanthochrous Javanicus Pat.) Java.

1334. G. laccatum Pat. 36 p. 500 Java; 163 p. 114 Java.

G. Lauterbachii Hennings 74 p. 499 Deutsch Neu-Guinea; 214 p. 42 (Fomes Lauterbachii Henn.) Deutsch Neu-Guinea.

1335. G. leucophaeum (Mont.) 134 p. 951 Java.

1336. G. Lingua (Nees) 26 (Polyporus lingua Nees) Java; 37 p. 4. (Polyporus Lingua Nees) Sarawak; 107 p. 66 (Polyporus Lingua Nees) Java; 131g p. 104 Fig. 399 Java, Sumatra, Neu-Guinea; 142 p. 316 (Polyporus Lingua Nees) Java; 273 (Polyporus Lingua Nees) Java.

1337. G. lucidum (Leys.) Karst. 10 p. 162 (Polyporus lucidus Fr.) Borneo; 33 p. 238 Java; 40 p. 116 (Fomes lucidus Fr.) Englisch Neu-Guinea; 138 p. 120 (Polyporus lucidus Fr.) Borneo; 144 (Polyporus lucidus Fr.) Java; 163 p. 114 Java; 185 (Polyporus lucidus Leys.) Java; 197a p. 213 Fig. 1 (Polyporus lucidus Leys.) Java; 214 p. 42 (Fomes lucidus (Leys.) Fr.) Deutsch Neu-Guinea; 220 p. 3 (Polyporus lucidus Fr.) Deutsch Neu-Guinea; 273 (Polyporus lucidus Pers.) Java; B.

1338. G. lucidum (Leys.) Karst var. japonicum Fr. 36 p. 500 Java.

G. macer Berk. 221 Timor.

1339. G. multiplicatum (Mont.) Pat. 36 p. 500 Java.

1340. G. nigricans Fr. 142 p. 315 (Polyporus nigricans Fr.) Java; 271 p. 386 (Polyporus nigricans Fr.) Java.

G. nitens Fr. 221 Timor.

G. nutans Fr. 71 p. 26 Deutsch Neu-Guinea; 214 p. 42 (Fomes nutans) Deutsch Neu-Guinea.

1341. G. oroleucum Pat. et Har. 107 p. 63 (Polyporus tropicus Jungh.) Java; 132 p. 4—8 (Polyporus tropicus Jungh.) Java; 133b p. 370 (Polyporus tropicus) Java; 133b p. 383 Java; 142 p. 315 (Polyporus tropicus Jungh.) Java; 167 p. 118 Java.

G. ochrolaccatum (Mont.) Pat. var. cornucopiae Hennings 68 p. 6—7 Deutsch Neu-Guinea; 71 p. 26 Deutsch Neu-Guinea.

1342. G. placopum (Lév.) 129a p. 124 (Polyporus placopus Lév.) Java; 131g p. 105 Java; 144 (Polyporus placopus) Java; L.

1343. G. praetervisum (Pat.) 70 p. 219 (Fomes praetervisus (Pat.) Sumatra; 76 p. 10 (Fomes praetervisus (Pat.) Sacc.) Sumatra; 214 p. 43 (Fomes praetervisus Pat.) Deutsch Neu-Guinea.

G. praetervisum Pat. forma mesopoda Pat. 71 p. 27 Deutsch Neu-Guinea.

1344. G. rivulosum Pat. et Har. 131g. p. 111 (Amaurodermus rivulosus) Java; 167 p. 119 Fig. 1 Java.

1345. G. rugosum (Nees) Pat. 26 (Polyporus rugosus Nees) Java; 33 p. 238 Java; 40 p. 116 (Fomes rugosus Nees) Englisch Neu-Guinea; 138 p. 120 (Fomes rugosus Sacc.) Borneo; 163 p. 114 Java; 36 p. 500 Java; 107 p. 72 (Polyporus rugosus Nees) Java.

1346. G. semilaccatum (Berk.) 127 p. 193 (Polyporus rhodophaeus Lév.) Java; 128 p. 603—604 (Polyporus rodophaeus Lév.) Java; 131g p. 129 (Lignosus rhodophaeus) Java; 133 p. 5 Java; 133b. p. 385 Java; L.

1347. G. testaceum (Lév.) Pat. 36 p. 501 Java.

1348. G. tornatum (Pers.) Bres. 36 p. 502 Java; 176a p. 173 (Polyporus tornatus) Rawak.

1349. G. triviale Bres. 36 p. 501 Java.

1350. G. umbrinum Bres. 36 p. 501 Java.

1351. Polyporus abnormis Lév. 127 p. 186—187 Java; 128 p. 602 Java.

1352. P. aculeatus Lév. 129a p. 137 Java; 144 Java; 273 Java.

1353. P. adustus (Willd.) Fr. 36 p. 494 Java; 219 p. 249 Deutsch Neu-Guinea.

1354. P. Agaricon Zoll. 131g. p. 145 Java.

1355. P. albo-marginatus Zipp. 127 p. 191 Java; 128 p. 604 Java.

1356. P. anebus Berk. 10 p. 163 Borneo; 36 p. 495—496 (Polyporus subpruinatus Bres.) Java; 40 p. 116 Englisch Neu-Guinea; 74 p. 500 (Polystictus subpictilis Hennings) Deutsch Neu-Guinea; 107 p. 54 Fig. 29 (Polyporus bicolor Jungh.) Java; 127 p. 188 (Polyporus vulneratus Lév.) Java; 128 p. 603 (Polyporus vulneratus Lév.) Java; 132 p. 2 (Polyporus bicolor Jungh.) Java; 133b p. 387 (Polyporus subpictilis Henn.) Java; 133b. p. 387 (Polyporus subpruinatus Bres.) Java; 133b. p. 388 (Polyporus vulneratus Lév.) Java; 142 p. 314 (Polyporus bicolor Jungh.) Java; 214 p. 49 (Polystictus subpictilis Hennings) Deutsch Neu-Guinea.

1357. P. annularis Fr. 36 p. 493 Java; 107 p. 53 Fig. 28 (Polyporus annulatus Jungh.) Java; 131g p. 131 Fig 428 (Polyporus annulatus) Java; 131g p. 145 Java; 132 p. 2 (Polyporus annulatus Jungh.) Java; 142 p. 314 (Polyporus annulatus Jungh.) Java.

1358. P. arcuatus (Zoll.) Pat. 144 (Boletus arcuatus Zoll.) Java; 161 p. 256 Holländisch Neu-Guinea; 271 p. 388 (Boletus arcuatus Zoll.) Java; 273 (Boletus arcuatus Zoll.) Java.

1359. P. arcularius (Batsch.) Fr. 34 p. 549 Borneo; 107 p. 72 Fig. 37 (Polyporus umbilicatus Jungh.) Java; 131g p. 179 (Polyporus umbilicatus Jungh.) Java; 132 p. 5 (Polyporus umbilicatus Jungh.) Java; 142 p. 316 (Polyporus umbilicatus Jungh.) Java; 221 (Polyporus umbilicatus Jungh.) Timor.

1360. P. arenatus Lloyd 131g p. 126 Holländisch Neu-Guinea.

1361. P. atypus Lév. 40 p. 116 Englisch Neu-Guinea; 127 p. 184 Java; 128 p. 601 Java; 131g p. 145 Java; 133 p. 2 Java.

1362. P. auriscalpium Pers. 10 p. 162 Borneo.

1363. P. baccatus Pers. 273 Java

1364. P. bataviensis Holterm. 96 p. 106 Taf. XI Fig. 4a-b Java.
P. Beccarianus Ces. 37 p. 4 Sarawak; 131g p. 187 Borneo.
P. betulinus Fries. 138 p. 121 Englisch Neu-Guinea.

1365. P. Blanchetianus Mont. 47 p. 67 Verlateneiland; 134 p. 965 Verlateneiland.

1366. P. bogoriensis Holterm. 96 p. 94—95, 110 Taf. IX Fig. 1—8 Java.

1367. P. Boucheanus Fr. 10 p. 162 Borneo.

1368. P. caesius (Schr.) Fr. 36 p. 493—494 Java.

1369. P. canaliculatus Pat. 165 p. 153 Java.

1370. P. carneus Blume et Nees 26 Java; 36 p. 496 (Fomes carneus Bl. et Nees) Java; 107 p. 59 Java; 107 p. 63 (Polyporus punctatus Jungh.) Java; 132 p. 4 (Polyporus punctatus Jungh.) Java; 133a p. 284 (Fomes punctatus Jungh.) Java; 142 p. 315 Java; 142 p. 316 (Polyporus punctatus Jungh.) Java; 144 Java; 271 p. 386 Java; 273 Java.

1371. P. caudicinus (Schaeff.) Schröt. 76 p. 10 (47) 145 Java.

P. ciliatus Fr. 214 p. 43 Deutsch Neu-Guinea.

1372. P. cinerascens Lév. 37 p. 7 Sarawak; 127 p. 184 Java; 128 p. 601 Java; 133 p. 3 Java.

1373. P. cinnabarinus Fr. 67a p. 305 Java; 127 p. 189 Sumatra; 128 p. 603 Sumatra; 220 p. 3 Deutsch Neu-Guinea.

1374. P. citrinus Zoll. 67a p. 304 Java.

1375. P. cohaerens Lév. 129a p. 132 Java; 144 Java; 273 Java.

1376. P. concrescens Mont. 36 p. 495 Java; 135 p. 1015 Verlateneiland.

1377. P. contractus Berk. 273 Java.

P. cremorinus Ces. 37 p. 5 Sarawak.

1378. P. croceopallens Lloyd 133b p. 331 Java.

P. crocitinctus Berk. et Curt. 37 p. 6 Sarawak.

P. cuticularis Fr. 40 p. 116 Englisch Neu-Guinea.

1379. P. decrescens Zoll. 67a. p. 304—305 Java; 131g. p. 145 Java; 271 p. 387 Java.

P. demissus Berk. 40 p. 116 Englisch Neu-Guinea.

1380. P. dermatodes Lév. 37 p. 6 Sarawak; 107 p. 45 Fig. 24 (Polyporus cervino-gilvus Jungh.) Java; 132 (Polyporus cervino-gilvus Jungh.) Java; 142 p. 313 (Polyporus cervino-gilvus Jungh.) Java.

1381. P. dermoporus Pers. 176a p. 170 Rawak.

P. dichrous Fr. 71 p. 27 Deutsch Neu-Guinea; 214 p. 44 Deutsch Neu-Guinea; 219 p. 249 Deutsch Neu-Guinea.

1382. P. Dickensii Berk. 36 p. 493 Java.

1383. P. dictyopus Mont. 36 p. 492 Java.

1384. P. discifer Pat. 131g. p. 145 Java; 163 p. 111 (Leucoporus discifer Pat.) Java; B.

1385. P. conchoides Mont. 133b. (Thelephora doloda Lév.) Java.

1386. P. Dozyanus Lév. 133b. p. 348 Java.

1387. P. durus Jungh. 107 p. 62 Java; 132 p. 3 Java; 133b p. 341 Java; 142 p. 315 Java.

1388. P. effusus Lév. 273 Java.

1389. P. elatinus Berk. 134 p. 951 Java.

P. eriopus Ces. 37 p. 4 Sarawak.

1390. P. eurocephalus Berk. et Br. 36 p. 493 Java.

P. evolutus Berk. et Cooke 71 p. 27 Deutsch Neu-Guinea; 214 p. 44 Deutsch Neu-Guinea.

1391. P. fasciatus Fr. 273 Java.

P. flabellato-lobatus Hennings 74 p. 500 Deutsch Neu-Guinea; 214 p. 44 Deutsch Neu-Guinea.

1392. P. floccosus Jungh. 107 p. 49 Fig. 27 Java; 132 p. 3 Java; 142 p. 313 Java.

1393. P. floccosus Jungh. var. solitaria Jungh. 107 p. 50 Java.

1394. P. frondosus (Schäff.) 144 (Boletus frondosus Schäff.) Java.

1395. P. fulvellus Bres. 133b p. 370 Java.

1396. P. fulvus Jungh. 37 p. 5 Sarawak; 273 Java.
1397. P. fusco-purpureus (Boud.) 176a p. 172—173 Rawak.
1398. P. gilvus Schwein. 36 p. 495 Java; 37 p. 6 (Polyporus caesiellus Ces.) Sarawak; 37 p. 8 (Favolus auriculaeformis Ces.) Sarawak; 71 p. 27 Deutsch Neu-Guinea; 74 p. 499 Deutsch Neu-Guinea; 76 p. (47) 145 Java; 127 p. 192 (Polyporus trachodes Lév.) Java; 127 p. 194 (Polyporus auriculaeformis Jungh.) Java; 128 p. 604 (Polyporus trachodes Lév.) Java; 128 p. 605 (Polyporus auriculaeformis Jungh.) Java; 133 p. 5 (Polyporus trachodes) Java; 133 p. 2 (Polyporus auriculaeformis Jungh.) Java; 133b p. 376 (Polyporus caesiellus Ces.) Borneo; 133b p. 388 (Polyporus trachodes Lév.) Java; 214 p. 45 Deutsch Neu-Guinea.
1399. P. Goethartii Bres. 35 p. 75 Java; 133b p. 345 Java.
P. gogolensis Hennings 71 p. 27 Deutsch Neu-Guinea; 133b p. 379 Deutsch Neu-Guinea; 214 p. 44 Deutsch Neu-Guinea.
1400. P. grammocephalus Berk. 33 p. 238 Java; 37 p. 5 Sarawak; 40 p. 115 Englisch Neu-Guinea; 47 p. 67 Krakatau; 71 p. 28 Deutsch Neu-Guinea; 74 p. 500 Deutsch Neu-Guinea; 76 p. (47) 145 Java; 83 p. 65 Java; 134 p. 965 Krakatau; 135 p. 1015 Verlateneiland; 166 p. 187 Java; 214 p. 44 Deutsch Neu-Guinea; 221 Timor; 273 Java.
1401. P. hirto-lineatus Pat. 133g p. 145 Java; 163 p. 111 (Leucoporus hirto-lineatus Pat.) Java.
1402. P. hypoxanthus Bres. 36 p. 494 Java.
1403. P. immaculatus Lloyd 133b p. 299—300 Fig. 637 Neu-Guinea.
1404. P. incompletus Ces. 37 p. 5 Sarawak; 131g p. 145 Borneo.
P. isidioides Berk. 40 p. 116 Englisch Neu-Guinea.
1405. P. Janseanus Hennings et Nyman 76 p. 11 Java.
1406. P. Junghuhnii Fr. 36 p. 496 Java; 107 p. 52 (Polyporus fusco-albus Jungh.) Java; 132 p. 3 (Polyporus fusco-albus Jungh.) Java; 142 p. 314 (Polyporus fusco-albus Jungh.) Java.
1407. P. lacer Sacc. 131g p. 146 Java.
1408. P. lateralis Pers. 176a p. 175 Rawak.
1409. P. leptopus Pers. 176a p. 169 Rawak.
1410. P. Léveillei Cooke 131g. p. 147 Java.
1411. P. lichenoides Mont. 144 Java; 273 Java.
1412. P. macroporus Lév. 133b. p. 382 Java.
1413. P. manubriatus Lév. 131g p. 145 Sumatra; 273 Sumatra.
1414. P. melaenus Lév. 129a p. 131 Java; 144 Java; 133b p. 358—359 Java; 273 Java.
1415. P. melaleucus Bres. 36 p. 492 Java.
1416. P. microscopicus Jungh. 107 p. 52 Java; 132 p. 4 Java; 133b. p. 382 Java; 142 p. 314 Java.

1417. P. minimus Jungh. 107 p. 64 Java; 142 p. 316 Java.
1418. P. niveus Jungh. 107 p. 48 Java; 132 p. 4 Java; 133b p. 383 Java; 142 p. 313 Java.
1419. P. notopus Lév. 127 p. 194 Java; 128 p. 605 Java; 131g p. 47 Java; 133 p. 4 Java.
1420. P. novo-guineensis Hennings 71 p. 28 Deutsch Neu-Guinea; 131g p. 170 Neu-Guinea; 131l p. 87 und 90 Neu-Guinea; 214 p. 45 Deutsch Neu-Guinea.
1421. P. ochraceus Pers. 127 p. 186 Sumatra; 128 p. 602 Sumatra.
1422. P. ostreiformis Berk. 36 p. 494 Java; 36 p. 494 (Polyporus griseus Bres.) Java; 133b p. 379 (Polyporus griseus Bres.) Java.
1423. P. perversus Lloyd 47 p. 67 Krakatau; 134 p. 965 Krakatau.
1424. P. Pilotae Schw. 36 p. 496 (Polyporus croceus (Pers.) Fr.) Java.
P. plebejus Berk. 71 p. 28 Deutsch Neu-Guinea; 214 p. 45 Deutsch Neu-Guinea.
P. portentosus Berk. 40 p. 116 Englisch Neu-Guinea.
1425. P. princeps (Pat.) 166 p. 187 (Xanthochrous princeps Pat.) Java.
1426. P. rigidulus Lév. 273 Java; B.
1427. P. rubidus Berk. 10 p. 163 Borneo; 40 p. 116 Englisch Neu-Guinea; 221 Timor.
P. russiceps Berk. et Br. 40 p. 115 Englisch Neu-Guinea.
P. scruposus Fr. 40 p. 116 Englisch Neu-Guinea.
P. subradiatus Bres. 219 p. 247 Deutsch Neu-Guinea.
1428. P. sulphureus (Bull.) Fr. 36 p. 493 (Polyporus miniatus Jungh.) Java; 70 p. 219 Java; 83 p. 65 Java; 107 p. 68 Fig. 34 (Polyporus miniatus Jungh.) Java; 131g p. 154 Fig. 454 (Polyporus miniatus) Java; 132 p. 4 (Polyporus miniatus Jungh.) Java; 134 p. 951 Java; 142 p. 316 (Polyporus miniatus Jungh.) Java; L.
1429. P. superpositus (Berk.) 131g p. 122 Fig. 421 (Lignosus superpositus) Neu-Guinea.
1430. P. tephronotus Berk. 36 p. 493 Java.
1431. P. tomohoniensis Hennings 76 p. 11 Taf. I Fig. 4 Celebes.
1432. P. trigonus Lév. 129a p. 125 Java; 144 Java; 273 Java.
1433. P. turbinatus (Pat. et. Har.) 167 p 117 (Leucoporus turbinatus) Java.
1434. P. udus Jungh. 108 p. 289 Fig. 5—6 Java; 131g. p. 145 Java; 142 Java.
1435. P. varius Fr. 127 p. 183 Java; 128 p. 601 Java; 144 Java; 273 Java.
1436. P. varius Fr. var. javanicus Lév. 76 p. (47) 145 Java; 129a p. 127 Java; 144 Java; 273 Java.
1437. P. varius Fr. var. purpurascens Jungh. 273 Java.
P. verecundus Berk. et Curt. 40 p. 116 Englisch Neu-Guinea.
1438. P. vibecinus Fr. 76 p. 11 Java.

1439. P. Warburgianus Hennings 76 p. 10 Taf. I Fig. 3 Celebes; 131g p. 186 Fig. 492 Celebes.
1440. P. Zollingeri Lév. 129a p. 131 Java; 131g p. 179 Java; 144 Java; 273 Java.
1441. P. zonalis Berk. 36 p. 495 (Polyporus rugulosus Lév.) Java; 10 p. 163 Borneo; 37 p. 6 Sarawak; 40 p. 116 Englisch Neu-Guinea; 47 p. 67 Krakatau; 71 p. 26 (Polyporus rugulosus Lév.) Deutsch Neu-Guinea; 71 p. 28 Deutsch Neu-Guinea; 96 p. 95—96 Taf. IX Fig. 9—12 (Polyporus polymorphus Holterm.) Java; 127 p. 189 (Polyporus rugulosus Lév.) Java; 128 p. 603 (Polyporus rugulosus Lév.) Java; 133 p. 5 (Polyporus rugulosus) Java; 133b p. 385 (Polyporus rugulosus Lév.) Java; 133b. p. 384 (Polyporus polymorphus Holterm.) Java; 133b. p. 380 (Polyporus Holtermanni Sacc.) Java; 133b. p. 336 Fig. 675 Java; 144 (Polyporus rugulosus Jungh.) Java; 163 p. 110—111 (Polyporus rugulosus Lév.) Java; 214 p. 43 (Fomes rugulosus Lév.) Deutsch Neu-Guinea; 214 p. 45 Deutsch Neu-Guinea; 219 p. 249 Deutsch Neu-Guinea; 221 Timor; 273 (Polyporus rugulosus Jungh.) Java; B. (Polyporus rugulosus Jungh.)
1442. Poronidulus bivalvis v. Höhnel 95c. p. 36—38 Fig. 26 Java. Lloydella Kalchbrennerii (Mass.) Bres. 221 Timor.
1443. L. papyracea (Jungh.) Bres. 219 p. 251 Deutsch Neu-Guinea.
1444. Polystictus affinis Nees 10 p. 163 Borneo; 26 Java; 34 p. 550 Borneo; 36 p. 503 Java; 37 p. 5 (Polyporus squamaeformis Berk.) Sarawak; 40 p. 116 (Polystictus squamaeformis Berk.) Englisch Neu-Guinea; 40 p. 116 Englisch Neu-Guinea; 47 p. 67 Krakatau; 71 p. 30 Deutsch Neu-Guinea; 76 p. 12. p. (48) 146 Java; 83 p. 65 Java; 107 p. 69 Java; 127 p. 183 Java, Sumatra; 128 p. 601 Java, Sumatra; 131g p. 148 (Polyporus squamaeformis Berk.) Borneo; 131k (Polystictus squamaeformis Berk.) Borneo; 131k. p. 53 und 57 Fig. 340 Java; 134 p. 951 Java; 138 p. 131 Englisch Neu-Guinea; 141 p. 265 Holländisch Neu-Guinea; 142 p. 316 (Polyporus affinis Nees) Java; 144 (Polyporus affinis Nees) Java; 163 p. 110 (Microporus affinis Nees) Java; 214 p. 45 Deutsch Neu-Guinea; 219 p. 249 Deutsch Neu-Guinea; 273 Java; B. (Polyporus affinis).
1445. P. affinis Nees var. malanopus Jungh. 107 p. 70 Fig. 36 Java.
1446. P. affinis Nees var. minor 70 p. 220 Java.
1447. P. anisopilus (Lév.) Lloyd 127 p. 191 (Polyporus anisopilus Lév.) Java; 128 p. 604 (Polyporus anisopilus Lév.) Java; 133a p. 278 Java.
1448. P. Blumei Lév. 47 p. 67 Krakatau; 71 p. 30 (Polystictus Kurzianus Cooke) Deutsch Neu-Guinea; 127 p. 184 (Polyporus dilatatus Lév.) Java; 127 p. 185 Java; 127 p. 186 (Boletus convolutus Zipp.) Java; 127 p. 200 (Hexagonia Blumei Lév.) Java; 128 p. 601 (Polyporus dilatatus Lév.) Java; 128 p. 602 (Polyporus Blumei

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1449. P. carneo-niger (Berk.) Cooke 36 p. 503 Java.

1450. P. celebicus Hennings 76 p. 12 Taf. I Fig. 5 Celebes.

P. cingulatus Fr. 71 p. 29 Deutsch Neu-Guinea; 214 p. 46 Deutsch Neu-Guinea.

1451. P. cinnamomeus (Jacq.) Sacc. 36 p. 502 Java.

1452. P. confertus Lév. 127 p. 187 Java; 128 p. 603 Java; 133 p. 3 Java.

1453. P. crenatus Berk. 47 p. 67 Krakatau; 127 p. 184 Java, Sumatra; 128 p. 601 Java, Sumatra; 134 p. 965 Krakatau.

1454. P. detonsus Fr. 71 p. 29 Deutsch Neu-Guinea; 127 p. 185 (Polyporus murinus Lév.) Java; 127 p. 186 Java; 128 p. 602 Java; 128 p. 602 (Polyporus murinus Lév.) Java; 128 p. 602 (Polyporus eximius Blume) Java; 131g p. 147 (Polyporus murinus Lév.) Java; 133 (Polyporus murinus) Java; 214 p. 46 Deutsch Neu-Guinea.

1455. P. discipes (Berk.) Fr. 10 p. 163 (Polyporus discipes Berk.) Borneo; 36 p. 502 Java.

1456. P. elongatus (Berk.) Fr. 36 p. 503 Java; 40 p. 117 Englisch Neu-Guinea; 127 p. 185 Java; 128 p. 602 Java; 128 p. 602 (Polyporus foliaceus Jungh.) Java; 134 p. 951 Java; 163 p. 110 (Coriolus elongatus Berk.) Java; 273 (Polyporus elongatus Berk.) Soembawa; B. (Polyporus elongatus).

1457. P. extensus Berk. 43 p. 55 Java.

P. Feei Fr. 40 p. 117 Englisch Neu-Guinea.

1458. P. fibula Fr. 36 p. 504 Java.

1459. P. flabelliformis (Klotzsch) 10 p. 163 (Polyporus flabelliformis Kl.) Borneo; 36 p. 503 Java; 37 p. 5 (Polyporus flabelliformis Klotzsch) Sarawak; 40 p. 116 Englisch Neu-Guinea; 71 p. 30 Deutsch Neu-Guinea; 76 p. 12 Celebes; 76 p. (48) 146 Java; 131g p 146 (Polyporus eriopus Ces.) Borneo; 214 p. 46 Deutsch Neu-Guinea.

P. flabelliformis (Klotzsch) form. apoda 71 p. 30 Deutsch Neu-Guinea.

P. florideus Berk. 71 p. 31 Deutsch Neu-Guinea; 214 p. 46 Deutsch Neu-Guinea.

1460. P. fumigatus Bres. 36 p. 503 Java.

1461. P. funalis Fr. 107 p. 61 Fig. 33 (Polyporus Mons Veneris Jungh.) Java; 131k p. 64 Fig. 353 (Polyporus Mons Veneris Jungh.) Java; 132 p. 4 (Polyporus Mons Veneris Jungh.) Java; 142 p. 315 (Polyporus Mons Veneris Jungh.) Java.

1462. P. fuscus Lév. 37 p. 9 (Favolus transiens Ces.) Sarawak; 71 p. 30 (Polystictus cichoriaceus Berk.) Deutsch Neu-Guinea; 71 p. 32 (Cyclomyces fuscus Fr.) Deutsch Neu-Guinea; 129a p. 137 (Polyporus fuscus Lév.) Java; 131k p. 62 Java; 131k p. 62 Fig. 350 (Favolus transiens Ces.) Java; 144 (Polyporus fuscus Lév.) Java; 163 p. 112 (Cyclomyces Léveillei Pat.) Java; 214 p. 46 (Polystictus cichoriaceus Berk.) Deutsch Neu-Guinea; 214 p. 52 (Cyclomyces fuscus Fr.) Deutsch Neu-Guinea; 219 p. 249 (Polystictus cichoriaceus Berk.) Deutsch Neu-Guinea; 273 (Cyclomyces fuscus Klotzsch) Java; 273 (Polyporus fuscus Lév.) Java; B (Polyporus fuscus Lév.).

1463. P. gallopavonis Berk. et Br. 37 p. 6 (Polyporus confundens) Sarawak; 76 p. (48) 146 Java; 131g p. 134 Java; 131g p. 146 (Polyporus confundes Ces.) Java.

P. glirinus Kalchbr. 71 p. 30 Deutsch Neu-Guinea; 214 p. 47 Deutsch Neu-Guinea.

1464. P. Hasseltii Lév. 127 p. 187 (Polyporus Hasseltii Lév.) Java; 128 p. 603 (Polyporus Hasseltii Lév.) Java; 133 p. 3 (Polyporus Hasseltii Lév.) Java.

P. helvolus Fr. 122 Timor.

1465. P. hirsutus Fr. 10 p. 163 (Polyporus hirsutus Fr.) Borneo; 40 p. 117 Englisch Neu-Guinea; 43 p. 55 Java; 134 p. 951 Java; 144 (Polyporus hirsutus Klotzsch) Java; 163 p. 110 (Coriolus hirsutus Fr.) Java; 214 p. 47 Deutsch Neu-Guinea; 273 (Polyporus hirsutus Klotzsch) Java; B. (Polyporus hirsutus).

P. hirsutus Fr. forma tenuior 221 Timor.

P. Hostmanni Berk. 40 p. 116 Englisch Neu-Guinea.

1466. P. hydnoides 47 p. 67 Krakatau.

1467. P. hypothejus (Kalchbr.) Cooke 36 p. 504 Java.

1468. P. Libum (Berk.) Cooke 36 p. 503 Java.

P. lilacino-gilvus Berk. 71 p. 29 Deutsch Neu-Guinea; 214 p. 47 Deutsch Neu-Guinea.

1469. P. lineatus (Pers.) 176a (Polyporus lineatus) Molukken.

1470. P. luteo-olivaceus Berk. et Br. 135 p. 1015 Verlateneiland; 214 p. 47 Deutsch Neu-Guinea.

1471. P. luteus Blume et Nees 26 Java; 33 p. 238 Java; 71 p. 30 Deutsch Neu-Guinea; 76 p. (48) 146 Java; 107 p. 66 (Polyporus luteus Nees) Java; 131k p. 341 Java; 142 p. 316 (Polyporus luteus Nees) Java; 214 p. 47 Deutsch Neu-Guinea.

P. luteus Blume et Nees forma cupreata Torrend 221 (Polyporus luteus Blume et Nees f. cupreata Torrend) Timor.

P. malaiensis Cooke 40 p. 116 Englisch Neu-Guinea.

1472. P. meleagris (Berk.) Cooke 36 p. 503 Java; 40 p. 116 Englisch Neu-Guinea.

1473. P. membranaceus (Swartz) Berk. 70 p. 220 Java; 76 p. 11, p. (47) 145 Java; 82 Java; 138 p. 120 Borneo.

1474. P. Menziesii Berk. 8. p. 378 Sumatra; 40 p. 116 Englisch Neu-Guinea; 131g p. 147 Sumatra.

1475. P. modestus Kunze 71 p. 29 Deutsch Neu-Guinea; 127 p. 183 (Polyporus modestus Fr.) Java; 128 p. 601 (Polyporus modestus Fr.) Java; 214 p. 47 Deutsch Neu-Guinea; 220 p. 3 (Polyporus modestus Kunze) Deutsch Neu-Guinea.

P. mutabilis Berk. et Cooke 71 p. 30 Deutsch Neu-Guinea; 214 p. 47 Deutsch Neu-Guinea.

1476. P. nepalensis Berk. 134 p. 951 Java.

P. nephridius Sacc. 40 p. 116 Englisch Neu-Guinea; 138 p. 121 Englisch Neu-Guinea.

1477. P. nipponoides Yasuda 47 p. 67 Krakatau.

1478. P. oblectans (Berk.) 163 p. 112 (Xanthochrous oblectans (Berk.); B.

1479. P. obliquus Massee 131g p. 132 (Petaloides obliquus) Neu-Guinea; 138 p. 122 Englisch Neu-Guinea.

P. obstinatus Cooke 40 p 117 Englisch Neu-Guinea; 71 p. 29 Deutsch Neu-Guinea; 214 p. 48 Deutsch Neu-Guinea; 221 (Polyporus obstinatus Cooke) Timor.

1480. P. obstinatus Cooke var. cornea Pat. 36 p. 504 Java.

1481. P. occidentalis (Klotzsch) Sacc. 10 p. 163 (Trametes occidentalis Fr.) Borneo; 36 p. 504 Java; 40 p. 117 Englisch Neu-Guinea; 71 p. 28 Deutsch Neu-Guinea; 76 p. 11 Celebes; 83 p. 65 Java; 144 (Polyporus occidentalis Klotzsch) Java; 214 p. 48 Deutsch Neu-Guinea; 221 Timor; 273 (Polyporus occidentalis Klotzsch) Java.

P. occidentalis (Klotzsch) Sacc. forma pleuropoda Henn. 71 p. 29 Deutsch Neu-Guinea.

P. occidentalis (Klotzsch) Sacc. forma mesopoda Henn. 71 p. 29 Deutsch Neu-Guinea.

P. ochrotinctus Sacc. 138 p. 121 Englisch Neu-Guinea.

1482. P. pellucida Jungh. 132 p. 4 Java.

1483. P. perdurans (Kalchbr.) Bres. 36 p. 502 Java.

1484. P. pergamenus Fr. 127 p. 187 (Polyporus splendens Lév.) Java; 128 p. 602 (Polyporus splendens Lév.) Java; 133 p. 2 Java; 133 p. 5 (Polyporus splendens Lév.) Java.

P. personatus (Berk. et Br.) 37 p. 6 (Polyporus personatus Berk. et Br.) Sarawak.

P. Peradeniae Berk. et Br. 37 p. 6 (Polyporus Peradeniae Berk. et Br.) Sarawak.

P. pinsitus Fr. 221 Timor.

1485. P. platypilus Lév. 127 p. 192 (Polyporus platypilus Lév.) Java; 128 p. 605 (Polyporus platypilus Lév.) Java; 133 p. 4 (Polyporus platypilus Lév.) Java.

1486. P. plicatus Blume 127 p. 185 (Polyporus plicatus Blume) Java; 128 p. 601 (Polyporus plicatus Blume) Java; 133 p. 4 Java.

P. pterygodes Fr. 219 p. 249 Deutsch Neu-Guinea.

1487. P. rasipes Berk. 33 p. 239 Java; 36 p. 503 (Polystictus obovatus (Jungh.) Bres.) Java; 40 p. 117 Englisch Neu-Guinea; 107 p. 65 (Polyporus obovatus Jungh.) Java; 131g p. 141 Fig. 445 (Polystictus obovatus) Java; 132 p. 4 (Polyporus obovatus) Java; 142 p. 316 (Polyporus obovatus Jungh.) Java; 219 p. 249 (Polystictus obovatus (Jungh.) Bres.) Deutsch Neu-Guinea.

P. rufo-cinerescens Hennings 74 p. 501 Deutsch Neu-Guinea; 214 p. 48 Deutsch Neu-Guinea.

1488. P. russogramme Berk. 11 p. 45 Ternate; 40 p. 116 Englisch Neu-Guinea.

1489. P. sacer Fr. 71 p. 31 Deutsch Neu-Guinea; 144 (Polyporus sacer Fr.) Java; 273 (Polyporus sacer Fr.) Java.

1490. P. sanguineus (Linn.) Nees 9 p. 332 (Polyporus sanguineus Fr.) Java; 10 p. 163 (Polyporus sanguineus Fr.) Borneo; 34 p. 550 Java; 40 p. 116 Englisch Neu-Guinea; 47 p. 67 Krakatau; 67a p. 304 (Polyporus sanguineus Fr.) Java; 71 p. 28 Deutsch Neu-Guinea; 107 p. 56 (Polyporus sanguineus L.) Java; 122 Timor; 127 p. 132 (Polyporus sanguineus Fr.) Java, Sumatra; 134 p. 951 Java; 134 p. 965 Krakatau; 138 p. 121 Englisch Neu-Guinea; 141a p. 177—178 (Polyporus sanguineus Fr.) Java, Sumatra, Borneo; 142 p. 314 (Polyporus sanguineus Fr.) Java; 144 (Polyporus sanguineus) Java; 163 p. 110 (Microporus sanguineus Fr.) Java; 176a p. 170—171 (Polyporus sanguineus) Molukken; 214 p. 49 Deutsch Neu-Guinea; 219 p. 249 Deutsch Neu-Guinea; 271 p. 387 (Polyporus sanguineus Fr.) Java; 273 (Polyporus sanguineus Fr.) Java, Sumatra; B. (Polyporus sanguineus).

P. scaber F. 214 p. 49 Deutsch Neu-Guinea.

1491. P. sideroides Lév. 36 p. 495 (Polyporus sideroides Lév.) Java; 127 p. 182 (Polyporus sideroides Lév.) Sumatra; 163 p. 112 (Xanthochrous sideroides Lév.) Java; 144 (Polyporus sideroides Lév.) Java; 273 (Polyporus sideroides Lév.) Java.

1492. P. stereinus Berk. et Cooke 36 p. 495 (Polyporus Liebmanni Fr.) Java; 76 p. (47) 145 Java; 74 p. 591 Deutsch Neu-Guinea; 214 p. 49 Deutsch Neu-Guinea.

P. submembranaceus Berk. 138 p. 121 Englisch Neu-Guinea.

1493. P. tabacinus Mont. 36 p. 504 (Polystictus spadiceus (Jungh.) Cooke) Java; 40 p. 116 (Polystictus microcyclus Lév.) Englisch Neu-Guinea; 40 p. 116 (Fomes spadiceus Berk.) Englisch Neu-Guinea; 62 p. 11 Celebes; 76 p. (47) 145 Java; 107 p. 54 Fig. 30 (Polyporus spadiceus Jungh.) Java; 127 p. 188 (Polyporus microcyclus Zipp.) Java; 127 p. 188 (Polyporus spadiceus Jungh.) Java; 128 p. 603 (Polyporus microcyclus Zipp.) Java; 131i p. 45 (Hexagona tabacina Lév.) Java; 131k p. 62 (Polystictus microcyclus Lév.) Java; 131k. p. 62 Fig. 347 (Polystictus spadiceus Jungh.) Java; 131k p. 62 Fig. 350 (Hexagona tabacinus Lév.) Java; 132 p. 4 (Polyporus spadiceus) Java; 133 p. 4 (Polyporus microcyclus Zipp.) Java; 142 p. 314 (Polyporus spadiceus Jungh.) Java; 219 p. 250 (Hexagona tabacina Lév.) Deutsch Neu-Guinea; 273 (Hexagonia tabacina Lév.) Java; 273 (Polyporus tabacinus Mont.) Java.

1494. P. tenuissimus (Lév.) 127 p. 188 (Polyporus tenuissimus Lév.) Java; 128 p. 603 (Polyporus tenuissimus Lév.) Java; 133 p. 5 Java.

1495. P. umbrinellus Bres. 33 p. 239 Java.

1496. P. unguiformis (Lév.) 129a p. 138 (Polyporus unguiformis Lév.) Java; 144 (Polyporus unguiformis Lév.) Java; 273 (Polyporus unguiformis Lév.) Java.

1497. P. venulosus (Jungh.) 47 p. 67 (Polyporus venulosus Jungh.) Verlateneiland; 107 p. 57 (Polyporus venulosus Jungh.) Java; 132 p. 5 Java; 134 p. 67 (Polyporus venulosus Jungh.) Verlateneiland; 142 p. 314—315 (Polyporus venulosus Jungh.) Java; 144 (Polyporus venulosus Jungh.) Java; 273 (Polyporus venulosus Jungh.) Java.

P. versatilis (Berk.) Sacc. 71 p. 29 Deutsch Neu-Guinea; 214 p. 49 Deutsch Neu-Guinea.

1498. P. versicolor (L.) Fr. 36 p. 504 Java; 76 p. (47) 145 Java; 107 p. 58 (Polyporus versicolor L.) Java; 127 p. 186 (Polyporus versicolor Fr.) Java; 134 p. 951 Java; 142 p. 315 (Polyporus versicolor Fr.) Java; 163 p. 110 (Coriolus versicolor) Java; 176a p. 174 (Polyporus versicolor) Rawak; 273 (Polyporus versicolor) Java; B (Polyporus versicolor Fr.)

1499. P. versicolor (L.) Fr. var. undulatus Jungh. 107 p. 58 (Polyporus versicolor var. undulatus Jungh.) Java.

P. vilis (Ces.) 37 p. 6 (Polyporus vilis Ces.) Sarawak.

1500. P. vinosus (Berk.) 33 p. 239 Java; 36 p. 504 (Polystictus badius (Jungh.) Bres.) Java; 40 p. 116 (Polyporus vinosus Berk.) Englisch Neu-Guinea; 47 p. 67 (Polyporus vinosus Berk.) Verlateneiland; 129a p. 126 (Polyporus tristis Lév.) Java; 133b. p. 342 Fig. 679 (Polyporus vinosus) Java; 133b p. 375 (Polyporus badius Jungh.) Java; 133b p. 388 (Polyporus tristus Lév.) Java; 134 p. 965 (Polyporus vinosus Berk.) Verlateneiland; 144 (Polyporus badius Jungh.) Java; 144 (Polyporus tristis Lév.) Java; 273 (Polyporus tristis Lév.) Java; 273 (Polyporus badius Jungh.) Java,

P. virgineus Fr. 40 p. 116 Englisch Neu-Guinea.

1501. P. vittatus Berk. 36 p. 503 Java; 221 Timor.

1502. P. xanthopus Fries 9 p. 331 (Polyporus xanthopus Fr.) Java; 26 (Polyporus Katui Ehrenb.) Java; 34 p. 549 Borneo; 37 p. 4—5 (Polyporus polychrous Ces. f. mesopoda) Sarawak; 40 p. 116 Englisch Neu-Guinea; 47 p. 67 Krakatau; 70 p. 221 Z. Celebes; 71 p. 31 Deutsch Neu-Guinea; 76 p. 12 Celebes; 76 p. (48) 146 Java; 83 p. 65 Java; 107 p. 70 (Polyporus xanthopus Fr.) Java; 134 p. 67 Krakatau; 135 p. 1015 Verlateneiland; 138 p. 120 Borneo; 138 p. 121 Englisch Neu-Guinea; 141a p. 175—176 (Polyporus xanthopus Fr.) Java; 142 p. 316 (Polyporus xanthopus Fr.) Java; 214 p. 49—50 Deutsch Neu-Guinea; 220 p. 3 (Polyporus xanthopus Fr.) Timor; 221 (Polyporus xanthopus Fr.) Timor.

1503. P. xanthopus Fr. var. rhodopus Lév. 144 (Polyporus xanthopus Fr. var. rhodopus Lév.) Java; 163 p. 110 (Microporus xanthopus Fr. var. rhodopus Lév.) Java; 273 (Polyporus xanthopus var. rhodopus Lév.) Java.

1504. P. xanthopus Fr. var. leucopus Jungh. 107 p. 71 (Polyporus xanthopus Fr. var. leucopus Jungh.) Java.

1505. P. zonatus Fr. 36 p. 504 Java.

P. zonatus Fr. var. pygmaea 37 p. 6 (Polyporus zonatus Fr. var. pygmaea) Sarawak.

1506. Trametes acuta Lév. 127 p. 196 Sumatra; 128 p. 606 Sumatra; 133 p. 2 Java.

1507. T. albida (Lév.) 33 p. 239 Java; 273 (Polyporus albidus Lév.) Java.

1507a. T. asper (Jungh.) 107 p. 60 Fig. 31 (Polyporus asper Jungh.) Java; 132 p. 2 (Polyporus asper) Java; 142 p. 315 (Polyporus asper Jungh.) Java; 144 (Polyporus asper Jungh.) Java; 273 (Polyporus asper) Java.

1508. T. aspera Lév. 40 p. 115 Englisch Neu-Guinea; 47 p. 67 Krakatau, Verlateneiland; 134 p. 965 Krakatau, Verlateneiland; 163 p. 109 (Lenzites aspera Klotzsch) Java; 214 p. 51 (Lenzites aspera Klotzsch) Deutsch Neu-Guinea; B (Lenzites aspera Kl.).

T. aspera Lév. form. subglabra 71 p. 34 (Lenzites aspera form. subglabra) Deutsch Neu-Guinea.

1509. T. aurora (Ces.) 37 p. 5 (Polyporus aurora Ces.) Sarawak; 131g p. 145 (Polyporus aurora Ces.) Borneo.

1510. T. badia Berk. 10 p. 163 Borneo.

T. colliculosa Berk. 37 p. 7 Sarawak.

1511. T. corrugata (Pers.) Bres. 129a p. 136 (Polyporus corru-gatus de Vriese et Lév.) Java; 176a p. 172 (Polyporus corrugatus) Rawak; 219 p. 250 Deutsch Neu-Guinea; 40 p. 115 (Lenzites corrugata Kl.) Englisch Neu-Guinea.

1512. T. crenulata Berk. 134 p. 951 Java.

T. discolor Sacc. et Berl. 221 Timor.
T. elegans (Spreng) Fr. 71 p. 31 Deutsch Neu-Guinea; 40 p. 115 Englisch Neu-Guinea; 214 p. 50 Deutsch Neu-Guinea.
T. fibrosa Fr. 71 p. 31 Deutsch Neu-Guinea; 214 p. 50 Deutsch Neu-Guinea.

1513. T. fuscella Lév. 47 p. 68 Krakatau; 133 p. 2 Java; 134 p. 965 Krakatau; 135 p. 1015 Verlateneiland; 273 (Polyporus fuscellus Lév.) Flores.
1514. T. glabra Lév. 33 p. 239 Java; 221 Timor.
1515. T. heteropora Mont. 134 p. 951 Java.
1516. T. hispidula Berk. et Curt. 134 p. 951 Java.
1517. T. hydnoides (Swartz) Fr. 70 p. 221 Celebes; 71 p. 31 Deutsch Neu-Guinea; 76 p. 12 Celebes; 127 p. 195 Java, Sumatra; 128 p. 605 Java, Sumatra; 214 p. 50 Deutsch Neu-Guinea.
1518. T. incana (Lév.) Quél. 221 Timor; 273 (Polyporus incanus Lév.) Java.

T. lactinea Berk. 40 p. 117 Englisch Neu-Guinea; 138 p. 122 Englisch Neu-Guinea.
T. ludificans Ces. 37 p. 7 Sarawak.

1519. T. Meyenii Klotzsch 47 p. 68 Krakatau; 134 p. 965 Krakatau.
1520. T. Moritzianus (Lév.) 129a p. 130 (Polyporus Moritzianus Lév.) Java; 144 (Polyporus Moritzianus Lév.) Java; 273 (Polyporus Moritzianus Lév.) Java.

T. Mulleri Berk. 40 p. 117 Englisch Neu-Guinea.

1521. T. parvula Bres. 36 p. 506 Java.
1522. T. Perrottetii Lév. 127 p. 195 Java; 128 p. 605 Java.
1523. T. Persoonii Fr. 10 p. 163 Borneo; 37 p. 7 (Daedalea sanguinea Klotzsch) Sarawak; 40 p. 117 (Polystictus Persoonii Fr.) Englisch Neu-Guinea; 47 p. 68 Krakatau, Verlateneiland; 70 p. 219 (Polystictus Persoonii Fr.) Java; 71 p. 28 (Polystictus Personii Fr.) Deutsch Neu-Guinea; 74 p. 500 (Polystictus Persoonii Fr.) Deutsch Neu-Guinea; 76 p. 11 (Polystictus Persoonii Fr.) Java, Celebes; 107 p. 51 (Polyporus indecorus Jungh.) Java; 127 p. 198 (Daedalea sanguinea Klotzsch) Java, Sumatra; 128 p. 606 (Daedalea sanguinea Klotzsch) Java, Sumatra; 128 p. 606 (Polyporus gonoporus Jungh.) Java; 132 p. 3 (Polyporus indecorus Jungh.) Java; 134 p. 965 Krakatau, Verlateneiland; 135 p. 1015 Krakatau, Verlateneiland; 138 p. 122 (Polystuctus Persoonii Sacc.) Englisch Neu-Guinea; 141a p. 186—187 (Daedalea sanguinea Klotzsch) Sumatra; 142 p. 314 (Polyporus indecorus Jungh.) Java; 163 p. 110 (Trametes sanguinea Klotzsch) Java; 214 p. 48 (Polystictus Persoonii Fr.) Deutsch Neu-Guinea.

T. Persoonii Fr. f. crassior 221 Timor.
T. Persoonii Fr. f. resupinata Henning 71 p. 28 Deutsch Neu-Guinea.

1524. T. pusilla (Pers.) 37 p. 4 (Polyporus rhipidius Berk.) Sarawak; 133 p. 5 (Polyporus pusillus Pers.) Java; 184 Java.
T. Rhizophorae Reichardt 71 p. 31 Deutsch Neu-Guinea; 214 p. 50 Deutsch Neu-Guinea.
T. rhizomorpha Berk. 221 Timor.
1525. T. rigida (Lév.) 127 p. 189 (Polyporus rigidus Lév.) Java; 127 p. 603 (Polyporus rigidus Lév.) Java; 133 p. 3 (Polyporus rigidus) Java.
1526. T. serpens Pers. 176a p. 173 Taf. 2 Fig. 2 Rawak.
1527. T. similis Bres. 36 p. 505 Java.
T. Sprucei Berk. 40 p. 117 Englisch Neu-Guinea.
1528. T. stereoides (Fr.) Bres. 36 p. 506 Java.
1529. T. tegularis (Lév.) 129 p. 131 (Polyporus tegularis Lév.) Java; 144 (Polyporus tegularis Lév.) Java; 273 (Polyporus tegularis Fr.) Java.
1530. T. Theae Zimm. 262 p. 101 Fig. 1 Java; 264 p. 51 Java.
1531. T. tuberculata Bres. 36 p. 505 Java.
1532. T. versatilis Berk. 10 p. 163 Borneo; 37 p. 7—8 Sarawak; 127 p. 195 Java; 128 p. 605 Java; 141a p. 182—183 Fl. 138 Fig. 1 Java.
1533. T. versiformis (Berk.) 36 p. 492 (Polvporus versiformis Berk.) Java; 134 p. 951 Java.
1534. T. vittata Lév. 127 p. 196 Sumatra; 128 p. 606 Sumatra; 133 p. 5 Sumatra.
1535. Daedalea citrina Holterm. 96 p. 97 Taf. IX Fig. 20—22 Java.
1536. D. flavida Lév. 127 p. 198 Borneo; 127 p. 198 (Daedalea lurida Lév.) Java; 128 p. 606 Borneo; 128 p 606 (Daedalea lurida Lév.) Java; 133 p. 3 Java; 133 p. 4 (Daedalea lurida) Java; 273 (Polyporus lenziteus Lév.) Sumatra.
D. glaberrima Berk. et Curt. 138 p, 122 Englisch Neu-Guinea.
1537. D. Höhnelii Bres. 36 p. 507—508 Java;
D. imponens Ces. 37 p. 7 Sarawak.
D. inconcinna Berk. 40 p. 117 Englisch Neu-Guinea.
D. irpiioides Hennings 74 p. 501 Deutsch Neu-Guinea; 214 p. 50 Deutsch Neu-Guinea.
D. lenzitiformis Ces. 37 p. 7 Sarawak.
1538. D. microzona Lév. 144 Java; 129a p. 142 Java.
D. platypoda Lév. 37 p. 7 Sarawak.
1539. D. polyzona (Pers.) 176a p. 171—172 (Polyporus polyzonus Pers.) Rawak.
D. pruinosa Lév. 37 p. 7 Sarawak.
1540. D. splendens Lév. 133 p. 5 Java.
1541. D. variabilis Holt. 96 p. 96—97 Taf. I Fig. 13—19 Java.
1542. Lenzites albolutea Lloyd 134 p. 951 Java.
1543. L. applanata Fr. 40 p. 115 Englisch Neu-Guinea; 129a p. 122 Java; 214 p. 51 Deutsch Neu-Guinea.
L. brunneola Berk. 37 p. 4 Sarawak.

1544. L. deplanata (Klotzsch) Fr. 40 p. 115 Englisch Neu-Guinea; 144 (Daedalea deplanata Klotzsch) Java; 163 p. 110 Java; 273 (Daedalea deplanata Klotzsch) Java; B.

1545. L. Junghuhnii Lév. 127 p. 180 Java; 128 p. 600 Java; 133 p. 3 Java.

1546. L. murina Lév. 127 p. 180 Sumatra; 128 p. 600 Sumatra; 133 p. 4 Sumatra.

1547. L. platyphylla Lév. 40 p. 116 (Polystictus Adami Berk.) Englisch Neu-Guinea; 107 p. 65 (Polyporus lacerus Jungh.) Java; 127 p. 179 Java; 127 p. 197 (Daedalea aulaxina Lév.) Java; 128 p. 600 Java; 128 p. 606 (Daedalea aulaxima Lév.) Java; 131g p. 146 (Polyporus lacerus Jungh.) Java; 132 p. 3—4 (Polyporus lacerus Jungh.) Java; 133 p. 4 (Daedalea platyphylla) Java; 133 p. 2 (Daedalea aulaxina) Java; 134 p. 951 Java; 142 p. 316 (Polyporus lacerus Jungh.) Java; 163 p. 109 Java; 273 Java; B.

1548. L. repanda (Mont) Fr. 10 p. 162 Borneo; 34 p. 549 (Lenzites Palisoti Fr.) Borneo; 37 p. 4 Sarawak; 71 p. 33 Deutsch Neu-Guinea; 107 p. 73 Fig. 39 (Daedalea indica Jungh.) Java; 127 p. 180 Java; 128 p. 600 (Daedalea indica Jungh.), p. 600 (Lenzites indica) und p. 600 Java; 132 p. 3 (Daedalea indica Jungh.) Java; 142 p. 317 (Daedalea indica Jungh.) Java; 176a p. 168 (Daedalea repanda) Rawak; 214 p. 51 Deutsch Neu-Guinea; 220 p. 2 (Lenzites Palisoti Fr. var Afzelii Fr.) Deutsch Neu-Guinea; 221 (Lenzites Palisoti Fr.) Timor.

L. repanda (Mont.) Fr. form. mesopoda minor 71 p. 33 Deutsch Neu-Guinea.

1549. L. striata Fr. 10 p. 162 Borneo; 221 Timor.

L. tenuis Berk. 221 Timor.

1550. L. variegata Fr. 163 p. 109 Java; B.

1551. Hexagonia albida Berk. 37 p. 8 (Hexagonia Cesatii Berk.) Sarawak; 40 p. 117 und 118 (Hexagonia favoloides Cooke) Englisch Neu-Guinea; 70 p. 221 Sumatra; 71 p. 32 Deutsch Neu-Guinea; 76 p. 12 Sumatra; 131i p. 29—30 Fig 313—314 (Hexagonia Cesatii) Borneo, p. 44 (Hexagonia favoloides Cooke) Neu-Guinea und p. 44 (Hexagonia Cookei) Neu-Guinea.

1552. H. apiaria Fr. 40 p. 177 Englisch Neu-Guinea; 71 p. 31 (Hexagonia Wightii Klotzsch) Deutsch Neu-Guinea; 76 p. 12 (Hexagonia Wightii (Klotzsch) Celebes; 127 p. 199 Java; 128 p. 607 Java; 131i p. 6 Fig. 279 Neu-Guinea; 176a p. 169—170 Taf. III Fig. 2 (Polyporus apiarus) Rawak; 214 p. 51 (Hexagonia Wightii Klotzsch) Deutsch Neu-Guinea.

1553. H. durissima Berk. et Br. 131i p. 16 Fig. 239 Java.

1554. H. durissima Berk. et Br. var. rhodomela Bres. 36 p. 507 Java.

1555. H. glabra Lév. 131i p. 44 (Hexagonia lurida Lév.) Java.

H. Gunnii Fr. 221 Timor.

1556. H. Henschalli Berk. 131i p. 11 Fig. 286 Java.
1557. H. Kurzii Curr. 34 p. 550 Borneo.
1558. H. macrotrema Jungh. 127 p. 200 (Hexagonia Molkenboerii Lév.) Java; 128 p. 607 (Hexagonia Molkenboerii Lév.) Java; 131i p. 30—31, Fig. 315 p. 40, 44 Java, Neu-Guinea; 132 p. 4 (Polyporus macrotrema Jungh.) Java; 133 p. 4 (Hexagonia Molkenboerii Jungh.) Java.
1559. H. Miquelii Lév. 36 p. 506 (Laschia pustulosa Jungh.) Java; 107 p. 73 Fig. 38 (Favolus pustulosus Jungh.) Java; 131i p. 36 Fig. 326, p. 45 Java; 132 p. 4 (Favolus pustulosus Jungh.) Java; 142 p. 317 (Favolus pustulosus Jungh.) Java; 271 p. 387 (Polyporus pustulosus Zoll. et Mor.) Java; 273 (Favolus pustulosus Jungh.) Java.
1560. H. polygramma Mont. 11 p. 44 Ternate; 37 p. 8 Sarawak; 40 p. 117 Englisch Neu-Guinea.
1561. H. sericea Klotzsch 144 Java; 273 Java.
1562. H. subaculeata Ces. 131i p. 45 Borneo.
1563. H. tenuis Hook. 1 Java; 40 p. 117 Englisch Neu-Guinea; 47 p. 67 Krakatau, Verlateneiland; 107 p. 61 Fig. 32 (Polyporus cervino-plumbeus Jungh.) Java; 127 p. 199 (Hexagonia cervino-plumbea Jungh.) Java; 127 p. 200 (Hexagonia pulchella Lév.) Java; 128 p. 606 (Hexagonia cervino-plumbea Lév.) Java; 128 p. 607 (Hexagonia pulchella Lév.) Java; 131i p. 25 Fig. 305, p. 40 (Hexagonia pulchella) Java; 131i p. 44 (Hexagonia cervino-plumbea Jungh.) Java; 133 p. 3 (Hexagonia Blumei) Java; 133 p. 5 (Hexagonia pulchella) Java; 134 p. 965 Krakatau, Verlateneiland; 135 p. 1015 Krakatau, Verlateneiland; 138 p. 122 Englisch Neu-Guinea; 142 p. 315 (Polyporus cervino-plumbeus Jungh.) Java; 144 (Hexagonia cervino-plumbea Lév.) Java; 163 p. 110 (Hexagonia cervino-plumbea Lév.) Java; 273 (Hexagonia cervino-plumbea Lév.) Java, Lombok; 34 p. 550 (Hexagonia bivalvis (Pers.) Bres.) Borneo; 36 p. 507 (Hexagonia bivalvis (Pers.) Bres.) Java; 37 p. 6 (Polyporus bivalvis Pers.) Sarawak; 71 p. 30 (Polystictus bivalvis Pers.) Deutsch Neu-Guinea; 76 p. 47) 145 (Polystictus bivalvis Pers.) Java; 135 p. 1015 (Hexagonia bivalvis) Verlateneiland; 176a p. 173—174 (Polyporus bivalvis) Rawak; 214 p. 46 (Polystictus bivalvis (Pers.)) Deutsch Neu-Guinea; B.
1564. H. tenuis Hook. f. fasciata Pat. 163 p. 110 (Hexagonia cervino-plumbea Lév. f. fasciata Pat.) Java.
1565. H. Thwaitesii Berk. 36 p. 507 Java; 221 Timor.
1566. H. vespacea (Pers.) 176a (Polyporus vespaceus Pers.) Rawak; 219 p. 251 (Elmerina vespacea (Pers.) Bres.) Deutsch Neu-Guinea.
1567. H. vitellina Ces. 37 p. 8 Sarawak; 131i p. 45 Borneo.
1568. Elmerina setulosa (Hennings) Bres. 36 p. 507 Java.

1569. Laschia caespitosa Berk. 214 p. 52 Deutsch Neu-Guinea; 131g p. 178 (Polyporus Binnendijkii Cooke) Java.
L. caespitosa Berk. var. gogolensis Hennings 71 p. 33 Deutsch Neu-Guinea.
1570. L. cantharelloides Pat. 163 p. 109 Taf. XXIV Fig. 5—7 Java.
1571. L. chloroleuca 107 p. 76 (Merulius cucullatus Jungh.) Java; 127 p. 179 (Cantharellus Junghuhnii Mont.) Java; 128 p. 600 (Cantharellus Junghuhnii Mont.) Java; 128 p. 600 (Cantharellus cuculatus Jungh.) Java; 132 p. 3 (Merulius cucullatus Jungh.) Java; 142 p. 317 (Cantharellus Junghuhnii Mont.) Java.
L. lurida Ces. 37 p. 9 Sarawak.
1572. L. minima Jungh. 36 p. 506 Java.
1573. Favolaschia bispora Holterm. 96 p. 105—106 Taf. XI Fig. 5a—b. Java.
1574. F. calamicola Hennings et Nyman 76 p. 13 Java.
F. grandiuscula Syd. 219 p. 252 Fig. 1D Deutsch Neu-Guinea.
1575. F. Holtermannii Hennings 76 p. (48) 146 Java; 96 p. 106 Taf. XII Fig. 3a-d, Java
1576. F. javanica Holterm. 96 p. 106 Taf. XII Fig. 2a-d, Java.
F. Ledermannii Syd. 219 p. 251—252 Fig. 1C Deutsch Neu-Guinea.
1577. F. nigrostriata Henn. et Nyman 76 p. 12 Java.
1578. Porolaschia semipellucida (Zoll.) Pat. 67 p. 304 (Favolus semipellucidus Zoll.) Java; 163 p. 109 Java; 274 p. 201—202 (Favolus semipellucidus Zoll. et Mor.) Java.
1579. P. Tonkinensis Pat. 166 p. 187 Java.
1579a. Gloeoporus croceopallens Bres. 36 p. 506 Java.
1580. G. leptoptopilus (Lév.) 133 p. 4 (Polyporus leptopilus) Java; 133b p. 381 (Polyporus leptopilus Lév.) Java.
1581. G. Rhipidium (Berk.) Speg. 76 p. (48) 146 Java; 214 p. 52 (Favolus Rhipidium Berk.) Deutsch Neu-Guinea.
G. Rhipidium (Berk.) Speg. f. minor Hennings 71 p. 32 Deutsch Neu-Guinea.
1582. Favolus agariceus Lév. 76 p. (47) 145 (Polyporus agariceus Berk.) Java; 127 p. 201 Sumatra; 128 p. 604 Sumatra.
F. alutaceus Berk. et Mont. 40 p. 117 Englisch Neu-Guinea.
1583. F. arcularius (Batsch) Lév. 70 p. 219 (Polyporus arcularius (Batsch) Deutsch Neu-Guinea; 74 p. 500 (Polyporus arcularius (Batsch) Fr.) Deutsch Neu Guinea; 76 p. 11 (Polyporus arcularius (Batsch) Fr.) Java, Deutsch Neu-Guinea; 76 p. (47) 145 (Polyporus arcularius (Batsch) Fr. Java; 127 p. 201 Java; 128 p. 607 Java; 144 Java; 214 p. 43 (Polyporus arcularius (Batsch) Fr.) Deutsch Neu-Guinea; 221 (Poluporus arcularius (Bull.) Fr.) Timor; 273 Java.
F. arcularius (Batsch) f. minor 71 p. 28 (Polyporus arcularius (Batsch) form. minor) Deutsch Neu-Guinea.

F. Brasiliensis Lév. 40 p. 117 Englisch Neu-Guinea.

1584 F. cucullatus Mont. 76 (48) 146 Java.

1585. F. Junghuhnii Lév. 33 p. 239 (Favolus scaber Berk. var fuscus Ces.) Java; 36 p. 506 Java; 127 p. 202 Java; 128 p. 607 Java; 133 p. 3 Java; 134 p. 951 Java.

F. Junghunnii Lév. var. caespitosa 37 p. 8 Borneo.

1586. F. Leeuwemii Lloyd 135 p. 1015 Verlateneiland.

1587. F. moluccensis Mont. 143 p. 365 Ternate

1588. F. laciniatus Lév. 127 p. 203 Java.

F. Lauterbachii Hennings 71 p. 32 Deutsch Neu-Guinea; 214 p. 52 Deutsch Neu-Guinea.

1589. F. multiplex Lév. 40 p. 117 Englisch Neu-Guinea; 127 p. 203 Java; 128 p. 608 Java; 133 p. 4 Java.

F. novo-guineensis Hennings 68 p. 7 Deutsch Neu-Guinea; 71 p. 32 Deutsch Neu-Guinea; 214 p. 52 Deutsch Neu-Guinea.

F. papulosus Ces. 37 p. 8 Sarawak.

1590. F. tessellatus Mont. 37 p. 8 Sarawak; 127 p. 202 (Favolus peltatus Lév.) Java; 128 p. 607 (Favolus peltatus Lév.) Java; 133 p. 4 (Favolus peltatus) Java; 144 (Favolus peltatus Lév.) Java; 273 (Favolus peltatus Lév.) Java.

1591. F. spathulatus (Jungh.) Bres. 36 p. 507 Java; 107 p. 75 (Laschia spathulata Jungh.) Java; 127 p. 203 Java; 128 p. 608 Java; 132 p. 4 (Laschia spathulatus Jungh.) Java; 142 p. 317 (Laschia spathulata Jungh.) Java.

1592. F. tener Lév. 127 p. 202 Sumatra; 128 p. 607 Sumatra; 133 p. 5 Sumatra.

Cyclomyces Beccarianus Ces. 37 p. 9 Sarawak.

1593. Hymenogramme crustacea (Jungh.) Sacc. 67a p. 305 (Laschia crustacea Jungh.) Java; 107 p. 75 Fig. 40 (Laschia crustacea Jungh.) Java; 127 p. 193 (Polyporus crustaceus Lév.) Java; 128 p. 605 (Polyporus crustaceus) Java; 132 p. 3 (Laschia crustacea Jungh.) Java; 142 p. 317 (Laschia crustacea Jungh.) Java.

1594. H. javensis Mont. et Berk. 9 p. 330 Taf. XIV Java; 144 Java; 273 Java.

Boletus Braunii Bres. 221 Timor.

1594a. B. Junghuhnii v. Höhnel 95c p. 39 Java.

B. lividus Bull. 219 p. 247 Deutsch. Neu-Guinea.

B. longicollis Ces. 37 p. 4 Taf. I Fig. Matang (Borneo).

1595. B. luridus Schaeff. 109 p. 368 Java.

B. Mandarinus Ces. 37 p. 4 Taf. II Fig. Borneo.

1595a. B. obscurecoccineus v. Höhnel 95c. p. 40—41 Java.

B. subtomentosus L. 37 p. 4 Borneo.

1596. B. tjibodensis Hennings 76 p. 13 Java.

1596a. Suilus atroviolaceus v. Höhnel 95c. p. 39 Java.

1597. Tylopilus javanicus Hennings 76 p. (48) 146 Java.
1598. Filoboletus mycenoides Hennings 76 p. (48) 146 Taf. V Fig. 2 Java; 85 p. 29 Java.
1599. Ceriomyces bogoriensis Holterm. 96 p. 98 Taf. VIII Fig. 2a-11c, Java.

Fam. **Agaricaceae.**

(Cantharelleae).

Cantharellus bicolor Ces. 37 p. 3. Sarawak.
1600. C. congregatus (Pat.) Sacc. 163 p. 108 (Dictyolus congregatus Pat.) Java.
1601. C. dichotomus Lév. 127 p. 172 (Agaricus dichotomus Lév.) Java; 128 p. 597 (Agaricus dichotomus Lév.) Java.
1602. C. partitius Berk. 10 p. 162 Borneo; 219 p. 247 Deutsch Neu-Guinea.
1603. C. ramealis Jungh. 107 p. 78 Java; 129a p. 121 Java; 142 p. 318 Java; 144 Java; 273 Java.
1604. Arrhenia cupuliformis Hennings 76 p. (49) 147 Java.
1605. Stylobates capitatus Pat. 166 p. 186 Java.
1606. S. cerebrinus Pat. 166 p. 183 Java.

(Paxilleae).

1607. Paxillus cantharelloides Hennings 76 p. 13 Taf. I Fig. 6 Celebes.
1607a. Phylloporus bogoriensis v. Höhnel 95c. p. 41 Java.

(Coprineae).

1608. Bolbitius tjibodensis Hennings 76 p. 15 Java.
1609. Coprinus atramentarius (Bull.) 107 p. 85 Java; 142 p. 319 Java; 271 p. 389 (Agaricus atramentarius Bull.) Java.
1610. C. aurantiacus Hennings et Nyman 76 p. (49) 147 Java.
1611. C. cinereus (Bull.) 107 p. 85 (Agaricus cinereus Bull.) Java; 142 p. 319 (Agaricus cinereus Bull.) Java; 271 p. 389 (Agaricus cinereus Bull.) Java.
1612. A. ephemerus Bull. 107 p. 85 (Agaricus ephemerus Bull.) Java; 142 p. 319 (Agaricus ephemerus Bull.) Java; 271 p. 389 (Agaricus ephemerus Bull.) Java.
1613. C. Friesii Quél. 166 p. 183 Java.
C. micaceus Bull. 221 Timor.
1613a. C. nebulosus Zoll. 67a p. 305—306. Java.
1613b. C. microsporus Berk et Br. 95c. p. 4—5 Java.
1614. C. phalloideus Hennings et Nyman 76 p. (49) 147 Java.
1615. C. pseudocomatus Hennings 76 p. 15 Java.

(Hygrophoreae).

1616. Hygrophorus aurantiacus Hennings 76 p. (50) 148 Java.
1617. H. badakensis Hennings 76 p. (50) 148 Java.

1618. H. ceraceus (Sow.) 273 (Agaricus ceraceus Sow.) Java.
1619. H. croceophyllus Bres. 33 p. 237 Java.
1620. H. Fleischerianus Hennings 76 p. (50) 148 Java.
1621. H. lactarioides Hennings 33 p. 237 Java.
1622. H. lurido-flavus Hennings 76 p. (50) 148 Java.
1623. H. gedehensis Hennings 76 p. (49) 147 Java.
1624. H. subvirgineus Hennings 76 p. (50) 148 Java.
1625. H. Sydowianus Hennings 76 p. (49) 147 Java.
1626. H. tjibodensis Hennings et Nyman. 76 p. 14 Java.
1627. Phaeolimacium bulbosum Hennings 76 p. 14 Java.
1628. Limacium subolivaceo-album Hennings 76 p. (50) 148 Java.
(Lactarieae).
Lactaria novo-guineensis Hennings 74 p. 503 Deutsch Neu-Guinea; 214 p. 56 Deutsch Neu-Guinea.
1629. L. sublignyota Hennings 76 p. 14 Java.
1629a. Russula adusta (P.) 95c. p. 28 Java.
1630. R. alutacea (Pers.) 107 p. 83 (Agaricus (Russula) alutaceus Pers.) Java; 142 p. 318 (Agaricus (Russula) alutaceus Pers.) Java.
1631. R. emetica (Schaeff.) 109 p. 388 (Agaricus emeticus Schaeff.) Java.
1632. R. Fleischeriana Hennings 76 p. 13 Java.
1633. R. gedehensis Hennings 76 p. (51) 149 Java.
1633a. R. integra Fr. 95c p. 28 Java.
1633b. R. lepida Fr. 95c p. 28 Java.
1633c. R. lilacea Quel. 95c p. 28 Java.
1634. R. pusilla Hennings 76 p. (51) 149 Java.
1634a. R. sororia Fr. 95c. p. 28 Java.
1635. R. subfragilis Hennings 76 p. (51) 149 Java.
1636. R. viscosa Hennings 76 p. (51) 149 Java.
1637. Russulina gedehensis Hennings 76 p. 14 Java.
1638. R. tjibodensis Hennings 76 p. 14 Java.
(Schizophylleae.)
1639. Schizophyllum alneum (L.) Schröt. 9 p. 331 (Schizophyllum commune Fr.) Java; 40 p. 115 (Schizophyllum commune Fr.) Englisch Neu-Guinea; 47 p. 66 (Schizophyllum commune) Krakatau; 70 p. 221 Java; 71 p. 35 Deutsch Neu-Guinea; 76 p. 16 Java, Celebes, p. (51) 149 Java; 107 p. 80 (Schizophyllum commune Fr.) Java; 134 p. 951 Java, p. 965 Krakatau; 138 p. 121 (Schizophyllum commune Fr.) Englisch Neu-Guinea; 142 p. 318 (Schizophyllum commune Fr.) Java; 163 p. 107 (Schizophyllum commune Fr.) Java; 183 (Schizophyllum commune) Java; 214 p. 53 Deutsch Neu-Guinea; 219 p. 247 (Schizophyllum commune Fr.) Deutsch Neu-Guinea; 221 (Schizophyllum commune Fr.) Timor; 273 (Schizophyllum commune Fr.) Java.

1640. S. alneum (L.) Schröt. var. multifidum (Batsch.) Fr. 34 p. 549 (Schizophyllum commune var. multifidum (Batsch.) Fr.) Borneo; B (Schizophyllum commune Fr. var. multifidum).

1641. S. lobatum Bref. 183 Java; 243 p. 158—163 Taf. XII Java.

1642. Oudemansiella Canarii (Jungh.) v. Höhnel 85 (Oudemansiella apalosarca (Berk. et Br.) v. Höhnel) Java; 86 p. 1—2 Java; 107 p. 82 (Agaricus Canarii Jungh.) Java; 142 p. 318 (Agaricus Canarii Jungh.) java; 76 p. (57) 155 (Pluteus macroporus Hennings) Java.

(Marasmieae).

Anthracophyllum nigrita (Lév.) Kalchbr. 219 p. 247 Deutsch Neu-Guinea.

Xerotus dasypus Ces. 37 p. 4 Sarawak.

1642a. X. rawakensis Pers. 176a p. 168 (Agaricus Rawakensis) Rawak.

1643. X. tomentosus Klotzsch 107 p. 81 (Xerotus indicus Jungh.) Java; 142 p. 318 (Xerotus indicus Jungh) Java; 144 (Agaricus (Xerotus). indicus Jungh.) Java; 273 (Xerotus indicus Jungh.) Java.

Lentinus Beccarianus Ces. 37 p. 3 Sarawak.

1644. L. braccatus Lév. 273 Bima.

L. brevipes Cooke 138 p. 120 Englisch Neu-Guinea.

L. calvescens Berk. 40 p. 115 Englisch Neu-Guinea.

1644a. L. capronatus Fr. 176a p. 167—168 Taf. 1 Fig. 6 (Agaricus strigosus) Rawak.

1645. L. chaetophorus Lév. 127 p. 177 Java; 128 p. 599 Java.

1646. L. ciliatus Lév. 127 p. 175 Molukken; 128 p. 599 Molukken.

L. crenulatus Massee 138 p. 121 Englisch Neu-Guinea.

1647. L. crinitus (Linn.) Fr. 70 p. 221 Celebes; 76 p. 16 Celebes; 138 p. 120 Englisch Neu-Guinea; 221 Timor.

1648. L. dactyliophorus Lév. 37 p. 3 Sarawak; 127 p. 174 Sumatra; 128 p. 598 Sumatra; 141a p. 168 Taf. 136 Fig. 2 Java; 144 Java; 221 Timor; 273 Java.

1649. L. dichrous Lév 273 Soembawa.

1650. L. djamor Fr. 273 Java.

1651. L. echinopus Lév. 129a p. 118 Java; 144 Java; 273 Java.

L. exilis Klotzsch 138 p. 121 Englisch Neu-Guinea.

1652. L. fasciatus Berk. 47 p. 66 Verlateneiland; 134 p 965 Verlateneiland.

L. glandulosus Ces 37 p. 3 Sarawak.

1653. L. gymnocephalus Lév. 127 p. 173 Java; 128 p. 598 Java.

L. holopogonius Berk. 71 p. 3 Deutsch Neu-Guinea; 214 p. 53 Deutsch Neu-Guinea.

1654. L. infundibuliformis Berk et Br. 34 p. 549 (Lentinus javanicus Lév.) Borneo; 129a p. 118 (Lentinus javanicus Lév.) Java; 138 p. 120 Englisch Neu-Guinea; 144 (Lentinus javanicus Lév.) Java; 273 (Lentinus javanicus Lév.) Java.

L. inquinans Berk. 40 p. 115 Englisch Neu-Guinea.
L. Kärnbachii Hennings 71 p. 34 Deutsch Neu-Guinea; 214 p. 53—54 Deutsch Neu-Guinea.
L. Lauterbachii Hennings 74 p. 502 Deutsch Neu-Guinea; 214 p. 54 Deutsch Neu-Guinea.
L. Lecomtei Fr. 40 p. 115 Englisch Neu-Guinea.
L. leucochrous Lév. 37 p. 4 Sarawak; 71 p. 34 Deutsch Neu-Guinea; 214 p. 54 Deutsch Neu-Guinea.
1655. L. melanophyllus Lév. 127 p. 175 Sumatra; 128 p 599 Sumatra.
L. Murrayi Kalchbr. et Mac Owan 220 p. 2 Deutsch Neu-Guinea.
1656. L. pergameneus Lév. 10 p. 162 Borneo; 40 p. 115 Englisch Neu-Guinea; 71 p. 34 Deutsch Neu-Guinea; 138 p. 119 Borneo, p. 121 Englisch Neu-Guinea; 214 p. 54 Deutsch Neu-Guinea.
1657. L. polychrous Lév. 127 p. 175 Java, Sumatra; 128 p. 598 Java, Sumatra.
1658. L. radicatus Cooke 40 p. 115. und 118 Englisch Neu-Guinea; 166 p. 182 Java.
1659. L. Sajor-Caju Fr. 71 p. 34 Java, Neu-Guinea; 74 p. 502 Deutsch Neu-Guinea; 76 p. (51) 149 Java; 83 p. 65 Java; 107 p. 83 (Agaricus Sajor-Caju Rumpf.) Java; 138 p. 120 Englisch Neu-Guinea; 142 p. 319 (Agaricus Sajor-Caju Rumpf.) Java; 204 p. 125 Taf. LVI Fig. 1 (Boletus primus infundibiliforma) Ambon; 214 p. 54 Deutsch Neu-Guinea.
1660. L. setiger Lév. 37 p. 3 Borneo; 141a p. 170 Taf. 136 Fig. 4 Java.
L. strigosus Fr. 71 p. 34 Deutsch Neu-Guinea; 74 p. 502 Deutsch Neu Guinea; 214 p. 55 Deutsch Neu-Guinea.
L. subtigrinus Hennings 74 p. 502 Deutsch Neu-Guinea; 214 p. 55 Deutsch Neu-Guinea.
L. subnudus Berk. 40 p. 115 Englisch Neu-Guinea.
L. Tanghiniae Lév. 214 p. 55 Deutsch Neu-Guinea.
L. tener Klotzsch 40 p. 115 Englisch Neu-Guinea.
L. tigrinus (Bull.) Fr. 221 Timor.
1661. L. Tuber-regium Fr. 70 p. 221 Celebes; 76 p. 16 Celebes; 204 p. 120 Taf. LVII Fig. 4 (Tuber regium) Ambon.
1662. L. variabilis Holterm. 96 p. 111 Taf. X Fig. 1a-d Java.
1663. L. velutinus Fr. 40 p. 115 Englisch Neu-Guinea; 47 p. 66 Krakatau; 127 p 176 Java; 128 p. 599 Java; 134 p 965 Krakatau.
L. villosus Klotzsch 74 p. 34 Deutsch Neu-Guinea; 214 p. 55 Deutsch Neu-Guinea.
1664. Panus bogorianus Hennings et Nyman 76 p. (51) 149 (Lentinus bogorianus Hennings et Nyman) Java.
P. conchatus Fr. 138 p. 120 Borneo.
P. copulatus Ehrbg. 37 p. 3 Sarawak.

P. Fendleri Berk. 71 p. 34 Deutsch Neu-Guinea; 214 p. 53 Deutsch Neu-Guinea.
P. rudis Fr 71 p. 35 Deutsch Neu-Guinea; 214 p. 53 Deutsch Neu-Guinea.
P. torulosus Fr. 40 p. 115 Englisch Neu-Guinea.

1665. Marasmius acumiatus Hennings 76 p. (52) 150 Java.
1666. M. bambusinus (Fries) 144 (Agaricus bambusinus Fr.) Java; 273 (Agaricus bambusinus Fr.) Java.
1667. M. calopodioides Hennings 76 p. (53) 151 Java.
1668. M. Campanella Holterm. 76 p. (52) 150 Java; 96 p. 105 Taf. XII Fig. 1a-c Java.
M. caulicinalis (Bull.) Quélet. 219 p. 247 Deutsch Neu-Guinea.
1669. M. cepaestipes Hennings et Nyman. 76 p. (53) 151 Java.
M. congregatus Mont. 219 p. 244 Deutsch Neu-Guinea.
1670. M. depressus Lév. 144 (Agaricus depressus Lév.) Java.
1671. M. epiphyllus Fr. 220 p. 2 Ambon.
M. erumpens Massee 138 p. 119 Borneo.
1672. M. Fleischerianus Hennings 76 p. (52) 150 Java.
1673. M. fuscatus (Lév.) 127 p. 169 (Agaricus fuscatus Lév.) Java; 128 p. 596 (Agaricus fuscatus Lév.) Java.
M. gogolensis Hennings 71 p. 35 Deutsch Neu-Guinea; 214 p. 55 Deutsch Neu-Guinea.
1674. M. helvelloides Hennings et Nyman 76 p. 15 Java.
M. Kärnbachii Hennings 74 p. 503 Deutsch Neu-Guinea; 214 p. 56 Deutsch Neu-Guinea.
1675. M. Moritzianus (Lév.) 129a p. 114 (Agaricus Moritzianus Lév.) Java; 144 (Agaricus Moritzianus Lév.) Java; 273 (Agaricus Morit. zianus Lév.) Java.
1676. M. Nymanianus Hennings 76 p. (52) 150 Java; 83 p. 65 Java-
M. oreades Fr. 37 p. 3 Sarawak.
1677. M pangerangensis Hennings 76 p. (52) 150 Java.
1678. M. parvulus (Lév.) 127 p. 168 (Agaricus parvulus Lév.) Java; 128 p. 596 (Agaricus parvulus Lév.) Java.
1679. M. plicatus Wakker 230 Java.
1680. M. purpureo-brunneolus Hennings 76 p. (53) 151 Java.
M. pusillus Hennings 74 p. 502 Deutsch Neu-Guinea; 214 p. 56 Deutsch Neu-Guinea.
1681. M. ramentaceus (Berk.) Pat. 144 (Agaricus ramentaceus Berk.) Java; 163 p. 107—108 Taf. XXIV Fig. 1—4 (Androsaceus ramentaceus (Berk.) Pat.) Java; 273 (Agaricus ramentaceus Berk.) Java.
M. rhodocephalus Fr. 74 p. 503 Deutsch Neu-Guinea.
1682 M. Sacchari Wakker 224 Java; 226 Java; 229 Java; 230 Java.
1683. M. sclerophorus (Korth.) 127 p. 170 (Agaricus sclerophorus Korth.) Java; 128 p. 597 (Agaricus sclerophorus Korth.) Java.

1684. M. similis Berk. et Curt. 43 p. 55 Java.
1685. M. Sumatrensis (Lév.) 127 p. 170 (Agaricus Sumatrensis Lév.) Sumatra; 128 p. 597 (Agaricus Sumatrensis Lév.) Sumatra.
1686. M. tenuipes (Lév.) 127 p. 170 (Agaricus tenuipes Lév.) Sumatra; 128 p. 576 (Agaricus tenuipes Lév.) Sumatra.
1687. M. tenuissimus Schw. var. major Jungh. 271 p. 389 Java.
1688. M. trichophorus Zipp. 127 p. 171 (Agaricus trichophorus Zipp.) Java; 128 p. 597 (Agaricus trichophorus Zipp.) Java.
1689. M. venosus Hennings et Nyman 76 p. (53) 151 Java.
1690. M. zandbaiensis Hennings et Nyman 76 p. (52) 150 Java.
Heliomyces pauciradiatus Ces. 37 p. 3 Sarawak.
1691. H. pityropus Lév. 127 p. 178 Java, Sumatra; 128 p. 599 Java, Sumatra.
(Agariceae.)
Psathyrella consimilis Bres. et Hennings 219 p. 247 Deutsch Neu-Guinea.
1692. P. disseminata (Pers.) Sacc. 71 p. 35 Deutsch Neu-Guinea; 76 p. (53) 151 Java; 214 p. 56 (Coprinarius disseminatus (Pers.) Schröt.) Deutsch Neu-Guinea.
1693. P. gracilis Fr. 76 p. (53) 151 Java.
1694. Panaeolus campanulatus (L.) Fr. 76 p. 16 (Chalymotta campanulata (L.) Karst.) Celebes; 221 Timor.
1695. P. fimicola Fr. 76 p. (54) 152 Java.
1696. P. papilionaceus Fr. 76 p. (54) 152 (Chalymotta papilionacea (Bull.) Karst.) Java; 166 p. 183 Java; 37 p. 3 (Agaricus papilionaceus (Bull.)) Sarawak.
P. retirugis Fr. 221 Timor.
1697. P. sphinctrinus Fr. 76 p. 16 (Chalymotta sphinctrina (Fr.) Karst.) Celebes.
1698. Psathyra conopileus (Fries) Karst. 76 p. (54) 152 Java.
1699. P. gyroflexa Fr. 166 p. 183 Java.
1699a. P. porphyrella Berk et. Br. 95c. p. 33 Java.
1700. P. spadiceo-grisea Schaeff. 76 p. (54) 152 Java.
1701. P. subvinosa (Berk.) 43 p. 55 (Agaricus (Psathyra) subvinosus Berk.) Java.
1701a. Psilocybe subaeruginascens v. Höhnel 95c. p. 30 Java.
1702. Hypholoma appendiculatum (Bull.) Sacc. 76 p. (54) 152 Java.
1703. H. fasciculare (Huds.) Sacc. 76 p. (54) 152 Java.
1704. H. phlebophora (Pat.) 166 p. 102 (Lacrymaria phlebophora Pat.) Java.
1705. Psalliota arginea Berk. et Br. 86 p. 12—13 Fig. 3 Java.
1706. P. campestris (L.) 107 p. 84 (Agaricus (Psalliota) campestris L.) Java; 142 p. 319 (Agaricus (Psalliota) campestris L.) Java.
P. fastigiata Bres. 221 Timor.

1707. P. microcosmus Berk. et Br. 86 p. 11 Fig. 2 Java.
1708. P. Rhinocerotis Jungh. 108 p. 292 (Agaricus (Psalliota) Rhinocerotis Jungh.) Java; 142 p. 320 (Agaricus (Psalliota) Rhinocerotis Jungh.) Java.
1708a. Micropsalliota plumaria (Berk. et Br.) v. Höhnel 95c p. 32 Java.
1708b. M. pseudovolvulata v. Höhnel 95c p. 31—32 Java.
1708c. Stropharia aerugineo-maculans v. Hohnel. 95 c. p. 30—31 Java.
1709. S. atrosanguinea Hennings 76 p. (54) 152 Java, p. 16 Java;
1710. S. indusiata Berk. 43 p. 55 Java.
1711. S. olivacea Hennings et Nyman 76 p. (54) 152 Java.
1712. S. pseudopsathyra Berk. 43 p. 55 Java.
1713. Crepidotus aurantiacus Bres. 33 p. 238 Java.
1714. C. columellifer Berk. 10 p. 161 Borneo.
1715. C. luteo-viridis Hennings 76 p. (54) 152 Java.
C. mollis Schaeff. 37 p. 2 Sarawak.
1716. C. ostreatoides Hennings et Hyman 76 d. 17 Java.
1717. C. schizophylloides Hennings 76 p. (55) 153 Java.
1718. C. tjibodensis Hennings 76 p. 17 Java.
1719. Galera umbrina Hennings 76 p. (55) 153 Java.
1720. Inocybe subgeophylla Hennings 76 p. (56) 154 Java.
1721. Naucoria agregata Hennings 76 p. (55) 153 Java.
1722. N. badakensis Hennings 76 p. (55) 153 Java.
1723. N. bogoriensis Hennings et Nyman 76 p. (55) 153 Java.
1724. N. flavo-viridula Hennings 76 p. 17 Java.
1725. N. micromegas Berk. 43 p. 55 Java.
1726. N. multiferus Berk. 43 p. 54 Java.
N. Myosotis Fr. 37 p. 2 Sarawak.
1727. N. subcucumis Hennings 76 p. (55) 153 Java.
1728. N. trichialis Lév. 129a p. 113 (Agaricus trichialis Lév.) Java; 144 (Agaricus trichiatis Lév.) Java; 273 (Agaricus trichialis Lév.) Java.
N. triscopoda Fr. 219 p. 247 Deutsch Neu-Guinea.
1729. Tubaria bogoriensis Hennings 76 p. 17 Java.
1730. T. infundibuliformis Hennings et Nyman 76 p. (56) 154 Java.
1731. T. mammosa Hennings 76 p. (56) 154 Java.
1732. Flammula javanica Hennings 71 p. 35 Java.
F. paupercula Ces. 37 Sarawak; 221 Timor.
F. penetrans Fr. 74 p. 504 Deutsch Neu-Guinea; 214 p 57 (Naucoria (Flammula) penetrans (Fr.) Hennings) Deutsch Neu-Guinea.
1733. F. tjibodensis Hennings 76 p. (56) 154 Java.
1734. Pholiota alutisporus Berk. 43 p. 54 Java.
1734a. P. sanguineo-maculans v. Höhnel 95c. p. 29 Java.
1735. P. submutabilis Hennings 76 p. (56) 154 Java.

1736. Locellina illuminans Hennings 76 p. 18 Taf. I Fig. 8 Celebes; 81 Celebes; 84 Celebes.
1737. Rozites Nymaniana Hennings 75 p. 28 Java; 76 p. 18. p. (57) 155 Java.
1738. Eccilia bogoriensis Hennings et Nyman 76 p. (57) 155 Java.
1739. E. zandbaiensis Hennings et Nyman 76 p. (57) 155 Java.
1740. Nolanea pallide-flava Hennings 76 p. 18 (Leptonia pallide-flava Hennings) Java; 86 p. 10—11 (Leptonia pallide-flava Hennings) Java.
1741. Pluteus aromaticus Hennings et Nyman 76 p. (58) 156 Java.
1742. P. candidus Hennings 76 p. (58) 156. Java.
1643. P. ferrugineus Hennings et Nyman 76 p. 19 Java.
1744. P. Fleischerianus Hennings 76 p. 19 Java.
P. leoninus (Schaeff.) Quél. 219 p. 247 Deutsch Neu-Guinea.
1745. P. subnanus Hennings et Nyman 76 p. (58) 156 Java.
1746. Clitopilus bogoriensis Hennings et Nyman 76 p. (57) 155 Java; 95c. p. 10—11 Java.
C. orcellarius Ces. 37 Borneo.
1747. Volvaria volvacea Fr. 83 p. 65 Java; 166 p. 182 Java.
1748. Pleurotus arrhenioides Hennings et Nyman 76 p. 20 Java.
1749. P. aureo-tomentosus Kalchbr. 33 p. 237 Java.
1750. P. Bogoriensis Lév. 127 p. 172 (Agaricus Bogoriensis Lév.) Java; 128 p. 597 (Agaricus Bogoriensis Lév.) Java.
P. craterellus Dur. et Lév. 219 p. 246 Deutsch Neu-Guinea.
1751. P. derminus (Lév.) 33 p. 237 Java; 127 p. 173 (Agaricus derminus Lév.) Java; 128 p. 598 (Agaricus derminus Lév.) Java.
1752. P. dictyodes (Lév.) 129a p. 116 (Agaricus dictyoides Lév.) Java; 144 (Agaricus dictyoides Lév.) Java; 273 (Agaricus dictyoides Lév.) Java.
1753. P. fissilis (Lév.) 127 p. 172 (Agaricus fissilis Lév.) Java; 128 p. 597 (Agaricus fissilis Lév.) Java.
P. gilvescens Kalchbr. 219 p. 247 Deutsch Neu-Guinea.
P. lagotis Berk et Curt. 219 p. 247 Deutsch Neu-Guinea.
1754. P. lobatus Hennings et Nyman 76 p. (58) 156 Java.
1755. P. Sarasini Hennings 76 p. 20 Celebes.
P. semisupinus Berk. et Br. 37 p. 2 Sarawak.
1756. P. subulatus Hennings et Nyman 76 p. (58) 156 Java.
1757. P. tenuissimus Jungh. 107 p. 84 Java; 142 p. 319 Java.
1757a. P. tenuissimus e major Jungh. 67a p. 305 (Agaricus tenuissimus a major) Java.
1758. P tjibodensis Hennings 76 p. (58) 156 Java.
1759. P. venulosus (Lév.) 129a p. 115 Java; 144 (Agaricus venulosus Lév.) Java; 273 (Agaricus venulosus Lév.) Java.
1760. P. Zippilii Lév. 127 p. 171 (Agaricus Zippelii Lév.) Java; 128 p. 597 (Agaricus Zippelii Lév.) Java.

1761. Omphalia cylindraceo-campanulata (Hennings) v. Höhnel 76 p. (53) 151 (Marasmius cylindraceo-campanulatus Hennings) Java; 86 p. 14—15 Fig. 4 (Marasmius cylindraceo-campanulatus Hennings) Java.
O. demissa Fr. 221 Timor.
1762. O. Martensii Hennings 69 p. 63—64 Tab VII Fig. 3 Java; 81 Borneo; 84 Borneo; B.
O. micromeles Berk. et Br. Sarawak.
1763. O. reversus Berk. 43 p. 54 Java.
1764. O. scyphoides Fr. 220 p. 2 Ambon.
1765. O. subfibula Hennings 76 p. (58) 156 Java.
1766. O. translucens Hennings 76 p. 20 Taf. I Fig. 9 Java.
1767. Mycena alcalina Fr. 76 p. (60) 158 Java.
M. arachnoideus Berk. et Curt. 37 p. 3 Sarawak.
1768. M. atro-discus Hennings et Nyman 76 p. 59 Java.
1769. M. bambusarum Berk. 43 p. 54 Java.
1770. M. breviseta v. Höhnel 86 p. 9—10 Java.
1771. M. clavulifera Berk. et Br. 86 p. 6—8 Textfig. 1 Java.
1772. M. depressa Lév. 129a p. 114 Java.
1773. M. digitalis Bres. 33 p. 237 Java.
1773a. M. eucystidiata v. Höhnel 95c p. 24—25 Java.
1774. M. galericulata (Scop.) Sacc. 76 p. (60) 158 Java.
1775. M. granulosa Hennings 76 p. (59) 157 Java.
1776. M. illuminans Hennings 81 p. (309)—(310) Java; 84 Java; 86 p. 4—6 Java.
1777. M. longiseta v. Höhnel 86 p. 8—9 Java.
1777a. M. pura (Pers.) Fr. 95c. p. 26. Java.
1778. M. rugulosa (Lév.) 85 Java, synoniem sind 1146—1148.
1779. M. subacicula Hennings 76 p. (59) 157 Java.
1780. M. subcapillaris Hennings 76 p. (59) 157 Java.
1781. M. subtintinnabulum Hennings 76 p. (59) 157 Java.
1782. M. Tintinnabulum Fr. 43 p. 54 Java.
1783. M. viridula Hennings et Nyman 76 p. (59) 157. Java.
1784. Hiatula pusilla Berk. 43 p. 55 Java.
1785. Collybia eurhiza (Berk.) v. Höhnel 37 p. 2 Fig. 1a-b (Agaricus (Tricholoma) sub-gambosus Ces.) Borneo, Sarawak; 76 p. 17 (Flammula Filipendula Hennings et Nyman) Java; 76 p. 18 (Pholiota Janseana Hennings) Java; 76 p. 19 (Pluteus bogoriensis Hennings et Nyman) Java; 76 p. 19 (Pluteus Treubianus Hennings et Nyman) Java; 85 Java; 127 (Flammula Filipendula Hennings et Nyman) Java; 127 p. 28 (Pholiota Janseana Hennings et Nyman) Java; 127 p. 28 (Pluteus Treubianus Hennings) Java; 166 p. 182 (Collybia radicata Pat.) Java.
1785a. C. longipes (Bull.) 95c Java.

1786. C. muciflua v. Höhnel 86 p. 2—4 Java.
1787. C. subconfluens Hennings 76 p. (60) 158 Java.
Laccaria Hookeri Massee 138 p. 120 Englisch Neu-Guinea.
1787a. L. laccata Scop. 95c p. 26 (Clitocybe laccata) Java.
1788. Clitocybe flexilis (Lév.) 127 p. 169 (Agaricus flexilis Lév.) Sumatra; 128 p. 596 (Agaricus flexilis Lév.) Sumatra.
1789. C. hymenodes (Lév.) 127 p. 169 (Agaricus hymenodes Lév.) Sumatra; 128 p. 596 (Agaricus hymenodes Lév.) Sumatra.
1790. Aeruginospora singularis v. Höhnel 85 p. 27 Java.
1791. Tricholoma obtecta (Jungh.) 107 p. 83 (Agaricus obtectus Jungh.) Java; 142 p. 318 (Agaricus obtectus Jungh.) Java.
1792. Lepiota aurantiaca Hennings 76 p. 21 Java.
1793. L. celebica Hennings 76 p. 21 Celebes.
L. caepestipes Sow. 219 p. 246 Deutsch Neu-Guinea.
1794. L. conipes Berk. 42 p. 105 Java.
1795. L. verrucosa Hennings et Nyman 76 p. 21 Java.
Armillaria distans Pat. 221 Timor.
1796. A. mellea (Vahl.) Quélet 83 p. 65 Java; 158 p. 24 Java; 201 Java; 95a p. 26 Java.
1797. A. mellea (Vahl.) Quélet var. javanica Hennings 76 p. 20 Java.
1797a. Amanitopsis vaginata (Bull.) Fr. 95c p. 26 Java.
1797b. A. vaginata (Bull.) Fr. var. grisea DC 95c p. 26 Java.
1797c. A. vaginata (Bull.) Fr. var. pallido-carnea v. Höhnel 95c p. 26 Java.
1797d. A. vaginata (Bull.) Fr var. angustilamellata v. Höhnel 95c p. 26 Java.

Gasteromycetes.

Phallineae.

Fam. **Clathraceae.**
Clathrus cibarius (Tul.) Fischer. 70 p. 222 Deutsch Neu-Guinea.
1798. C. triscapus (Turpin) Fr. 51 p. 67 Java.
1799. Clathrella Treubii Bern. 16 Java; 131e p. 381—383 (Clathrus Treubii) Fig. 212 Java; 131f p. 56—57 Fig. 72 (Clathrus Treubii) Java.
1800. C. pusilla (Berk.) 58 p. 125 1 Fig. Java.
1801. Laternea (?) pentactina Hennings et Nyman 76 p. 23 Java; 174 p. 170 Java.
1802. Simblum gracile Berk. 131e p. 383 Fig. 213 Java; 131f p. 66 Fig. 84 Java.
1803. S. periphragmoides Klotzsch 51 p. 66 (Simblum flavescens) Java; 58 p. 123 1 Fig. Java; 76 p. 22 Java; 131f p. 66 Fig. 83 Java; 163 p. 120 Java; 174 p. 157—158 Taf. XXIV Fig 9—11 Java.
1804. Pseudocolus javanicus (Penzig) 131f p. 52 Fig. 66 Java; 174 p. 160—163 Taf. XXIB, XXIV Fig. 12—14, XXV 2—3 (Colus javanicus Penzig.) Java.

1805. P. rugulosus Lloyd 131f p. 52 Fig. 67 Java.
1806. Aseroe arachnoidea Ed. Fischer 131f p. 48 Fig. 55—56 Java; 166 p. 191 (Aseroe rubra La Bill. var. Bogoriensis Pat.) Java; 174 p. 164—169 Taf. XXV Fig. 4—13 Textfig. p. 165, Java;
1807. A. rubra La. Bill. 201a p. 57 Java.
1808. A. rubra La Bill. var. Junghuhnii (Schlecht) 21a Java; 174 p. 164 Java; 273 (Aseroe multiradiata Zoll.) Java.
A. rubra La Bill. var. zeylanica (Berk.) Ed. Fischer. 214 p. 58 Deutsch Neu-Guinea.

Fam. **Phallaceae.**

1809. Mutinus Bambusinus (Zollinger) Ed. Fischer 54 p. 30—34 Taf. IV-V Fig. 26—31 Java; 76 p. 21 Java, Celebes; 51 p. 55 Java; 131d p. 358 Fig. 178—179 Java; 131f. p. 28 Fig. 26 Celebes; 174 p. 136—137 Java; 273 Java.
1810. M. borneensis Ces. 37 p. 12 Taf. I Fig. Sarawak; 51 p. 57 Borneo.
1811. M. Fleischeri Penzig 131f p. 28 Fig. 27 Java; 174 p. 137—138 Taf. XXI A, Taf. XXII Fig. 1—4 Java.
1812. M. minimus Pat. 166 p. p. 191 Java; 174 p. 138—139 Java.
1813. Jansia elegans Penz. 131f. p. 33—34 Fig. 32 und 33 Java; 174 p. 140—142 Taf. XX A, Taf. XXII Fig. 5—13 Java.
1814. J. Nymaniana (Hennings) Penz. 58 p. 126 (Mutinus Nymaninus (Hennings) Fischer) Java; 76 p. 22 Taf. I Fig. II (Floccomutinus Nymanianus Hennings) Java; 131d p. 387 Fig. 217—218 (Jansia rugosa Penz.) Java; 131f. p. 33 Fig. 30—31 (Jansia rugosa Penz.) Java; 170 Java; 174 p. 142—143 Taf. XX B, XXIII Fig. 1—4 (Jansia rugosa Penzig) p. 169 (Floccomutinus Nymanianus Henn.) Java.
1815. Janseella Asteriscus Hennings et Nyman 76 p. (73) 171 Taf. V. Fig. 19. Java.
1816. Ityphallus celebicus (Hennings) 59 Java: 76 p. 21 Taf. I Fig. 10 (Phallus celebicus Hennings) Celebes; 131f. p. 22 Fig 99 (Phallus celebicus) Celebes.
1817. I. costatus Penzig 174 p. 147—148 Taf. XXIII Fig. 10—11, Taf. XXIV Fig. 1—3, Java.
1818. I. favosus Penz. 174 p. 148—150 Taf. XXIV Fig. 4—5 und Textfig. p. 149. Java.
1819. I. rugulosus Ed. Fischer 54 p. 35—38 Taf V. Fig. 32—34 Java.
1820. I. tenuis Ed. Fischer 51 p. 45 Java; 54 p. 4—22 Taf. 1—3 Fig. 1—18, Java; 83 p. 65 (Phallus tenuis Ed. Fischer) Java; 131f p. 10 und 14 Fig. 3 (Phallus tenuis) Java; 174 p. 144—146 Taf. XX II Fig. 6—9, Java.
Echinophallus Lauterbachii Hennings 71 p. 36 (Ithyphallus Lauterbachii Hennings) Deutsch Neu-Guinea; 131f p. 24—25 Fig.

20 (Clautriavia Lauterbachii) Deutsch Neu-Guinea; 214 p. 59 Deutsch Neu-Guinea.

1821. Dictyophora callichroa (Möll.) 131f p. 20 (Phallus callichrous) Java.

1822. D. multicolor Berk. et Br. 76 p. 22 (Dictyophora echinata Hennings et Nyman) Java; 131f p. 20 Fig 14 (Phallus multicolor) Java; 174 p. 154–157 Taf. XIX A, Java.

1823. D. phalloidea Desv. 60 p. 1—2 Sumatra; 74 p. 505 Deutsch Neu-Guinea; 76 p. 22 Sumatra; 83 p. 65 Java; 131f p. 18 Fig. 12 (Phallus indusiatus) Java, Borneo; 144 Java; 163 p. 120 Java; 174 p. 151—152 Taf. XVI, XVII Java; 215 p. 59 Deutsch Neu-Geuinea; 219 p. 254 Deutsch Neu-Guinea; 273 Java.

D. phalloidea Desv. forma aurantiaca Hennings 214 p. 59 Deutsch Neu-Guinea.

1824. D. phalloidea Desv. var. campanulata Ed. Fischer 51 p. 31 (Dictyophora campanulata Nees.) Java; 51 p. 36 (Dictyophora daemonum Rumphius) Java; 54 p. 23—29 (Dictyophora Campanulata Nees.) Taf. III—IV Fig. 19—25 Java; 67a p. 301 (Phallus daemonum Rumph.) Java; 70 p. 222 Sumatra; 76 p. 22 Java; 131f p. 20 Fig. 15 (Phallus daemonum.) Ambon; 204 p. 131 Taf. LVI Fig. 7 (Phallus daemonum) Ambon; 271 p. 379 (Phallus daemonum Rumph.) Java; L.

1825. D. phalloidea var. Lauterbachii Fisscher 71 p. 36 Deutsch Neu-Guinea; 70 p. 32 Celebes.

1826. D. rosea (Ces.) Ed. Fischer 37 p. 12 (Hymenophallus roseus Ces.) Borneo; 51 p. 35 Borneo; 131f p. 20 (Phallus roseus) Java.

1827. Clautriavia merulina (Berk.) 33 p. 240 (Dictyophora irpicina Pat.) Java; 58 p. 126 (Dictyophora irpicina Pat.) Java; 131f p. 24 Fig. 19 Java; 166 p. 190 (Dictyophora irpicina Pat.) Java; 174 p. 152—154 Taf. XXIII, XXIV, Fig. 6—8, XXV Fig. 1 (Dictyophora irpicina Pat.) Java.

Hymenogastrineae.

Fam. **Hymenogastraceae**.

1828. Hymenogaster javanicus v. Höhnel 85 p. 33 Fig. 2 Java.

H. mucosus Petri 177 p. 130 Taf. II, Fig. 11, 13 16 Borneo.

Octaviana bornensis Petri 177 p. 128 Taf. II Fig. 12, 19, 20, Taf. III Fig. 4 Borneo.

Clasthrogaster Beccari Petri 177 p. 126 Taf II Fig. 3—5, 7—9 Borneo.

C. vulvarius Petri 177 p. 126 Taf II Fig. 1—2, Taf. III 2, 3, 5—8, 10, 11—13, Taf. IV Borneo.

1829. Hydnangium javanicum Hennings 77 p. 27 Java; 85 p. 33 Java.

Rhizopogon luteolus Fr. 37 p. 12 (Splanchnomyces luteus Corda) Sarawak.

1830. Lycogalopsis Solmsii Ed. Fischer 53 p. 192—197 Java; 166 p. 195 Java.

Lycoperdineae.

Fam. **Lycoperdaceae.**

1831. Lycoperdon Bovista Linn. 67a p. 301 (Lycoperdon giganteum Batsch.) Java; 70 p. 222 Java; 76 p. 23 Java; 109 p. 368 (Bovista gigantea) Java; 271 p. 378 (Lycoperdon giganteum) Java; 273 Java; B (Bovista gigantea.)

1832. L. cyathiforme Bosc. 76 p. (60) 158 Java.

1833. L. furfuraceum Schaeff. 107 p. (Lycoperdon pusillum Batsch) Java; 127 p. 220 (Lycoperdon pusillum Batsch) Java; 128 p. 614 (Lycoperdon pusillum Batsch und Lycoperdon farinaceum Reinw.) Java; 142 p. 309 (Lycoperdon pusillum Batsch.) Java.

1834. L. gemmatum Batsch. 70 p. 222 Java; 76 p. 23 Java; 144 Java; 273 Java.

1835. L. Henningsii Sacc. 76 p. (60) 158 (Lycoperdon pisiforme Hennings) Java; 131a p. 233 Fig. 64 Java.

1836. L. Kakavu Lév. 67a p. 301 Java; 127 p. 220 Java; 128 p. 613 Java.

1837. L. lignigenum Hennings et Nyman 76 p. 23 Java.

1838. L. ostiolatum Pat. et Har. 167 p. 119 Java.

1839. L. piriforme Schaeff. 71 p. 36 Deutsch Neu-Guinea und Java; 76 p. (60) 158 Java; 127 p. 230 Sumatra; 128 p. 613 Sumatra 214 p. 59 Deutsch Neu-Guinea.

1840. L. roseum Zoll. 67a p. 301 Java; 274 p. 200—201 Java.
L. scrobiculatum Ces. 37 p. 12 Sarawak.

1841. L. uteriforme Bull. 76 p. (60) 158 Java.

1842. L. Wrightii Berk. et Curt. 131b p. 171—272 Fig. 114 Java.
Caloderma echinatum Petri 177 p. 132 Taf. II Fig. 10, 17, 18, Taf. III 9, 12 Sarawak.

1843. Hippoperdon pyriforme Lév. 129a p. 174 Java; 144 Java; 273 Java

1844. Lycoperdopsis arcyrioides Hennings et Nyman 60 p. 2—6 Taf. I Fig. 1—5 Sumatra; 76 p. 23 (Lycoperdon arcyrioides Hennings et Nyman) Java; 76 p. (60) 158 Taf. V Fig. 5 Java; 91 p. 15 Java.

1845. Bovista spumosa Lév. 127 p. 219 Sumatra; 128 p. 613 Sumatra.

1846. Geaster fimbriatus Fries 76 p. (61) 159 Java; 135 p. 1015 Verlateneiland.

1847. G. javanicus Lév. 129a p. 161 Java; 144 Java; 273 Java;

1848. G. lageniformis Vitt. 83 p. 65 Java.
G. minimus Schw. 37 p. 12 Sarawak.

1849. G. mirabilis Mont. 166 p. 194 Java.

1850. G. mirabilis Mont. var. substipitata Hennings 76 p. 24 Taf. I Fig. 12 Java, Celebes.

1851. G. stipitatus Solms 57 p. 50—56 Taf. V Fig. 1—5 Java; 166 p. 194 Java.
1852. G. striatus De Cand. 76 p. (61) 159 Java.
1853. G. triplex Jungh. 108 p. 287—288 Fig. 1—3 Java; 142 p. 319 Java.
1854. G. velutinus Morgan 60 p. 6—10 Taf. I Fig. 6—8, Sumatra.
1855. Lasiosphaera Tenzlii Reichardt 131c p. 347 Sumatra

Fam. **Nidulariaceae.**

1856. Cyathus byssisedus (Jungh.) Tul. 9 p. 335 (Nidularia byssiseda Jungh.) Java; 37 p. 12 Sarawak; 67a (Cyathus radicans Zoll.) p. 301 Java; 107 p. 24—25 Fig. 12 (Nidularia Byssiseda Jungh.) Java; 142 p. 309 (Nidularia byssiseda Jungh.) Java; 144 (Nidularia byssiseda Jungh.) Java; 163 p. 120 Java; 271 p. 378 (Cyathus Radicans Zoll.) Java; 273 (Nidularia byssiseda Jungh.) Java; B; L.
1857. C. Montagnei Tul. 43 p. 56 Java.
C. Poepiggii Tul. 221 Timor.
1858. C. striatus (Huds.) Hoffm. 70 p. 223 Java; 76 p. 24 Java.
1859. Crucibulum vulgare Tul. 128 p. 614 Sumatra.
1860. Nidula emodensis (Berk.) Lloyd var. Heinricherii Bres. 33 p. 240 Java.

Plectobasidiineae.

Fam. **Sclerodermataceae.**

Scleroderma Bovista 40 p. 117 Englisch Neu-Guinea.
S. columnare Berk. et Br. 37 p. 12 Sarawak.
1861. S. lanosum Pat. 166 p. 193 Java.
1862. S verrucosum (Bull.) Pers. 33 p. 240 Java; 70 p. 223 Java; 76 p. 24 Java.
1863. Scleroderma vulgare Horn 33 p. 240 Java; 70 p. 223 Java; 76 p. 24 und p. (61) 159 Java; 83 p. 65 Java; 166 p. 193 Java; 214 p. 60 Deutsch Neu-Guinea.
1864. S. vulgare Horn. var. bogoriensis Hennings et Nyman 76 p. (61) 159 Java.
S. vulgare Horn. var. novo-guineense Hennings 71 p. 37 Deutsch Neu-Guinea.
1865. Pirogaster Fleischerianus Hennings 77 p. (27) Fig. 1 und 2, Java.
1866. Pisolithus Kisslingi Fischer 60 p. 10—13 Taf. I Fig. 9—10, Sumatra.
1867. Polygaster sampadarius (Rumph.) Fr. 204 p. 123 (Tuber sampadarius) Ambon.

Fam. **Calostomaceae.**

1868. Calostoma Junghuhni (Schlechtend. et Müll.) Massee 131a p. 241 (Mitremyces Junghuhni) Java, Sumatra.

1869. C. Sarasini (Hennings) 76 p. 24 Taf. II Fig. 13 (Mitremyces Sarasini Hennings) Celebes.
C. insignis (Berk.) 37 p. 12 Taf. II Fig. a et b (Husseia insignis Berk.) Sarawak.
C pachystelis (Ces.) 37 p. 13 Taf. II Fig. II a-c (Husseia pachystelis Ces.) Sarawak.

Fam. **Tulostomataceae.**
Tulostoma exasperatum Mont. 219 p. 253 Deutsch Neu-Guinea.
T. pusillum Berk. 37 p. 12 Sarawak.

Fungi imperfecti.

Sphaeropsidales.

Fam. **Sphaerioidaceae.**
1870. Phyllosticta Arthrophylli Koord. 119 p. 204 Abb. 24 1—4 Java.
1871. P. Chaesembillae Koord. 119 p. 205 Java.
1872. P. Cinchonae Koord. 119 p. 203 Abb. 1—5 Java.
1873. P. Cinchonicola Rant 197 p. 3—4 Fig. 1a-c Java.
1874. P. Durionis Zimm. 265 p. 217 Java.
1875. P. Elasticae Koord. 119 p. 203 Java; 118 p. 304 Java.
1876. P. Heveae Zimm. 206 p. 34 Taf. X Java; 269 p. 21 Java.
1877. P. Palaqui Hennings 79 p. 144 Java.
P. papuensis Cooke 41 p. 18 Englisch Neu-Guinea.
1878. P. Piperis Hennings 79 p. 144 Java.
1879. P. ramicola Petch 206 p. 26 Java.
1880. P. Roberti Boy et Jac. 118 p 304 Java; 119 p. 203 Java.
P. Stenotaphri Thüm. 220 p. 5 Deutsch Neu-Guinea.
1881. P. Vanillae Hennings 79 p. 144 Java; 91 p. 188 Java.
1882. Phoma acmella Berk. 43 p. 56 Java.
P. aequivocum Ces. 37 p. 25 Sarawak.
1883. P. seriata Lév. 128 p. 618 Java.
1884. P. Zehntneri Koord. 118 p. 304 Java; 119 p. 205 Abb. 26 Fig. 1—7, Java.
Macrophoma Pandani Berl. et Vogl. 111 p. 3 Deutsch Neu-Guinea.
1885. Plenodomus Erythrinae Oud. 264 p. 804 Java.
1886. Sphaeronaema grandisporum v. Höhnel 86 p. 128 Java.
1887. Sphaeronaemella macrospora Penz. et Sacc. 175 p. 235 Java; 176 p. 93—94 Taf. LXII Fig. 4, Java; B.
1888. Sirococcus Elasticae Koord. 119 p. 207 Java.
Sirosperma hypocrellae Syd. 219 p. 258 - 259 Fig. 2a-c Deutsch Neu-Guinea.
1889. Vermicularia Dematium (Pers.) Fr. 175 p. 233 Java; B.
1890. V. longiseta Penz. et Sacc. 175 p. 233 Java; 176 p. 91 Taf. LX Fig. 3 Java; B.

1891. Fusicoccum Elasticae Koord. 118 p. 305 Java; 119 p. 208 Abb. 27 Fig. 1—6, Java.
1892. Cytospora leucosperma Fr. 107 p. 14 Java; 142 p. 309 Java.
1893. Sphaeropsis citrinella Lév. 128 p. 618 Java.
1894. S. decipiens Lév. 129a p. 294 Java; 144 Java; 273 Java.
S. undulata Berk. et Curt. 37 p. 24 Sarawak.
1895. Coniothyrium Coffeae Zimm. 265 p. 216 Java; 267 p. 36—37 Fig. 23 Java.
1896. C. Palaqui Zimm. 269 p. 26 Java.
1897. Haplosporella bogoriensis Penz. et Sacc. 175 p. 233 Java; 176 p. 91 Taf. LX Fig. 4 Java; B.
1898. H. dendritica Rac. 190 Java.
1899. Discomycopsella Bambusae Hennings 79 p. 146 Java.
1900. Diplodia Agave Niessl. 265 p. 216 Java.
1901. D. Arthrophylli Penz. et Sacc. 175 p. 233 Java; 176 p. 91—92 Taf. LXI Fig. 1 Java; B.
1902. D. Cinchonae Koord. 119 p. 209 Java; 197 p. 23—24 Java.
1903. D. coffeicola Zimm. 265 p. 216 Java; 267 p. 74 Java; 268 Java.
1904. D. Mangiferae Koord. 119 p. 210 Java.
1905. D. Mangostanae Hennings et Nyman 76 p. 36 Java.
1906. D. Papayae Thüm. 175 p. 234 Java; B.
1907. D. Wurthii Koord. 118 p. 305 Java; 119 p. 154 Textabb. 4 Java.
1908. Chaetodiplodia Coffeae Zimm. 262 p. 143 Fig. 15 Java.
1909. C. Vanillae Zimm. 91 p. 190 Java; 266 p. 479 Fig. 9 Java.
1910. Diplodiella Caryotae Rac. 190 Java.
1911. Botryodiplodia acacigena Penz. et Sacc. 175 p. 234 Java; 176 p. 92 Taf. LXI Fig. Java; B.
1912. B. longipes Penz. et Sacc. 175 p. 234 Java; 176 p. 92 Taf. LXI Fig. 3 Java.
1913. Stagonospora Cassavae v. d. Wolk 253 p. 225—230 Fig. 1—10 Java.
1914. S. disseminata Rac. 190 Java.
1915. Hendersonia Mangiferae Koord. 118 p. 210 Java.
1916. Angiopomopsis lophostoma v. Höhnel 93 p. 69 Fig. 6 Java.
1917. Pellionella deformans Penz. et Sacc. 175 p. 234 Java; 176 p. 92—93 Taf. LXI Fig. 4 Java; B.
1918. Septoria brachyspora Sacc. 118 p. 305 Java; 119 p. 212 Java.
1919. S. Elasticae Koord. 118 p. 305 Java; 119 p. 211 Abb. 28 Fig. 1—5 Java.
1920. S. Oryzae v. Breda de Haan 32 Java.
1921. S. phlyctaenoides Penz. et Sacc. 175 p. 235 Java; 176 p. 93 Taf. LXII Fig. 1 Java; B.
1922. Rhabdospora Elettariae Penz. et Sacc. 175 p. 235 Java; 176 p. 93 Taf. LXII Fig. 2 Java; B

R. hystrix Ces. 37 p. 23 Taf. IV Fig. Sarawak.

1923. Phlyctaena variabilis Penz. et Sacc. 175 p. 235 Java; 176 p. 93 Taf. LXII Fig. 3 Java; B.

Fam. **Nectrioidaceae**.

1924. Zythia abnormis Penz. et Sacc. 175 p. 236 Java; 176 p. 94 Taf. LXIII Fig. 1 Java; B.

1925. Aschersonia basicystis Berk. et Curt. 135 p. 1015 Verlateneiland.

A. caespiticia Syd. 219 p. 260 Deutsch Neu-Guinea.

1926. A. Coffea Hennings 79 p. 145 Java.

1927. A. Euginiae Koord. 119 p. 214 Abb. 31 Fig. 1—4 Java.

1928. A. Henningsii Koord. 119 p. 213 Abb. 30 Fig. 1—7 Java.

1929. A. javanica Penz. et Sacc. 175 p. 236 Java; 176 p. 94 Taf. LXIII Fig. 2 Java; B.

1930. A. lecanoides Hennings 79 p. 145 Java; 119 p. 212 Abb. 29 Fig. 1—5 Java.

A. novo-guinensis Hennings 74 p. 509 Deutsch Neu-Guinea; 214 p. 64 Deutsch Neu-Guinea.

1931. A. pediculoides Hennings 79 p. 145 Java.

1932. A. phthiurioides Hennings 79 p. 145 Java.

1933. A. sclerotioides Hennings 79 p. 146 Java.

1934. Trichosperma griseo-candidum Penz. et Sacc. 175 p. 237 Java; 176 p. 96 Taf. LXIV Fig. 3 Java; B.

Fam. **Leptostromataceae**.

1935. Diplopeltis Zimmermanniana Hennings 79 p. 146 Java.

1936. Actinothyrium minutum v. Höhnel 88 p. 78 Java.

1937. Amerosporium Vanillae Hennings 79 p. 146-147 Java.

Fam. **Excipulaceae**.

1938. Excipula oospora Penz. et Sacc. 175 p. 237 Java; 176 p. 95 Taf. LXIV Fig. 1 Java; B.

1939. Phaeodiscula gonospora Penz. et Sacc. 175 p. 23 Java; 176 p. 94—95 Taf. LXIII Fig. 3 Java; B

1940. P. gonospora Penz. et Sacc. subsp. atrata Penz. et Sacc. 175 p. 236 Java; 176 p. 95 Taf. LXIII Fig. 4 Java; B.

1941. P. gonospora Penz. et Sacc. subsp. atratula Penz. et Sacc. 175 p. 237 Java; 176 p. 95 Java.

1942. P. gonospora Penz. et Sacc. subsp. minutella Penz. et Sacc. 175 p. 237 Java; 176 p. 95 Java; B.

1943. Schizothyrium Aceris (Hennings et Lindau) Pat. 163 p. 123 (Schizothyrium Aceris-laurini Pat.) Java; 190 Java; B.

1944. Oncospora Pezizella Penz. et Sacc. 175 p. 237 Java; 176 p. 95—96 Taf. LXIV Fig. 2 Java; B.

1945. Ephelis Rhynchosporae Hennings 76 p. 37 Java.

Melanconiales.

Fam. **Melanconiaceae.**

1946. Hainesia Tellingsii Koord. 119 p. 215 Abb. 32 Fig. 1—3 Java.
1947. Gloeosporium albo-rubrum Petch 206 p. 26 Taf. V Java.
1948. G. anceps Penz. et Sacc. 175 p. 238 Java; 176 p. 96 Taf. LXIV Fig. 4 Java; B.
1949. G. Bischofiae Koord. 119 p. 215 Java.
1950. G. coffeanum Delacroix 265 p. 217 Java; 267 p. 34-36 Fig. 22 Java; 268 Java.
1951. G. Elasticae Cooke et Massee 116 Java; 117 Java; 118 p. 306 (Colletotrichum Ficus Koord.) Java; 118 p. 306 Java; 119 p. 10 (Colletotrichum Ficus Koord) Java; 119 p. 10 und p. 218 Java; 269 p. 17, 21 Java.
1952. G. Garciniae Koord. 119 p. 217 Abb. 33 Fig. 1 Java.
1953. G. hysterioides Ell. et Ev. 119 p. 216 Java.
1954. G. Mangiferae Rac. 119 p. 216 Java; 190 Java; B.
1955. G. Pithecolobiae Koord. 119 p. 216 Java.
1956. G. Ptychospermatis Hennings 79 p. 147 Java.
1957. Myxosporium candidissimum Rac. 119 p. 218 Abb. 34 Java; 190 Java; B.
1958. M. Meliae Zimm. 264 p. 804 Java; 265 p. 218 Java.
1959. M. Theobromae v. Breda de Haan 32 Java; 263 p. 923 Java.
1960. Pestalozziella longiseta (Rac.) v. Höhnel 87 p. 79 (Neottiospora longiseta Rac.) Java; 190 (Neottiospora longiseta Rac.) Java.
1961. Colletotrichum Anthurii Delacroix 87 p. 80 Java.
1962. C. Camelliae Massee p. 147 Java; B.
1963. C. Canangae Koord. 119 p. 220 Abb. 33 Fig. 3 Java.
1964. C. Cinchonae Koord. 118 p. 307 Java; 119 p. 220 Java; 197 p. 4 Java.
1965. C. Durionis Koord. 119 p. 218 Abb. 33 Fig. 4 Java.
1966. C. Elasticae Tassi 116 Java; 118 p. 306 Java; 119 p. 19 und 123 Java; 255 Java; 269 p. 16 Java.
1967. C. Erythrinae Koord. 119 p. 219 Abb. 33 Fig. 2 Java.
1968. C. falcatum Went 181 Java; 229 Java; 230 Java; 236 Java; 241 Java; 244 Java.
1969. C. incarnatum Zimm. 262 p. 143 Fig. 16-17 Java; 266 p. 480 Java; 267 p. 37-38 Fig. 24 Java; 268 Java.
1970. C. macrosporum Sacc. 266 p. 480 Java.
1971. C. minus Zimm. 269 p. 26 Java.
1972. C. Palaqui Zimm. 269 p. 26 Java.
1973. C. Pothi Koord. 119 p. 219 Java.
1974. C. Theae Zimm. 464a p. 647 Java
1975. Melanconium Oryzae v. Breda de Haan 32 Java.

1976. M. Palaqui Zimmerm. 269 p. 27 Java.
1977. M. profundum Penz. et Sacc. 175 p. 239 Java; 176 p. 97 Taf. LXV Fig. 4 Java; B.
1978. M. Sacchari Massee 175 p. 238 Java; 249 Java; B.
1979. M. Saccharinum Penz. et Sacc. 175 p. 238 Java; 176 p. 97 Taf. LXV Fig. 3 Java; B.
1980. M. sphaerospermum (Pers.) Link 175 p. 238 Java; 176 p. 96 Java.
1981. M. sphaerospermum (Pers.) Link subsp. Bambusarum Penz. et Sacc. 175 p 238 Java; 176 p. 96-97 Taf. LXV Fig. 2 Java.
1982. Marsonia Tetracerae Rac. 190 Java.
1983. Didymosporum exsulatum Jungh. 107 p. 3 Taf. 1 Fig. 1 Java; 142 p. 307 Java.
1984. Septogloeum Arachidis Rac. 31 p. 55 Java; 187 p. 66-67 Java; 190 Java; B.
1985. S. Elasticae Koord. 118 p. 307 Java; 119 p. 220 Abb. 35 Fig. 1-5 Java.
1986. S. Manihotis Zimm. 265 p. 218 Java.
1987. Pestalozzia Canangae Koord. 119 p. 224 Java;
1988. P. Cinchonae Zimm. 197 p. 40-41 Fig. 24a-b Java.
1989. P. Cinnamomi v. Breda de Haan 32 Java.
1990. P. Coffeae Zimm 267 p. 74-75 Fig. 45 Java; 268 Java.
1991. P. Elasticae Koord. 118 p. 307 Java; 119 p. 223 Java.
1992. P. funerea Desm. 175 p. 239 Java; B.
1993. P. leucodisca Penz. et Sacc. 175 p. 239 Java; 176 p. 97 Taf. LXI Fig. 1 Java; B.
1994. P. monochaeta Desm. 190 Java.
1995. P. Myricae Koord. 119 p 224 Abb. 33 Taf. V. Java.
1996. P. palmarum Cooke 12 p. 313 Java; 12a Java; 13 Java; 15 Java; 17 Java; 18 Java; 19 p. 327 Java; 20 Java; 23a Java; 24 p. 4 Sumatra; 112 p. 612 Java; 113 p. 624 Java; 119 p. 223 Java; 168 p. 47 Java; 190 Java; B.

Hyphomycetes.

Fam. **Mucedinaceae.**

1997. Chromosporium pallens Penz. et Sacc. 175 p. 239 Java; 176 p. 98 Taf. LXVI Fig. 2 Java; B.
1998. Oospora carneola Sacc. 175 p. 239 Java; B.
1999. Monilia javanica Went et Prinsen Geerligs 242 p. 8 Taf. I Fig. 1-4 Java.
2000. M. sitophila (Mont.) Sacc. 67a p. 289—290, 328 Java; 95 p. 55 Java; 221a p. 274 Java; 245 Java; 246 Java; 247 Java; 247a p. 106—119 Java.
2001. Moniliopsis Aderholdi Ruhl. 199 Java.
2002. Oidium Tabaci Thüm 190 Java; B.

2003. Cylindrium fugax Penz. et Sacc. 175 p. 240 Java; 176 p. 98 Taf. LXVI Fig. 4 Java.
2004. Oedocephalum macrosporum Penz. et Sacc. 175 p. 242 Java; 176 p. 99 Taf. LXVII Fig. 3 Java; B.
2005. Allantospora radicicola Wakker 228 Java; 230 Java.
2006. Cephalosporium Lecanii Zimm. 270 p. 241 Java.
2007. Trichoderma lignorum (Tode) Harz 175 p. 240 Java; B.
2008. Aspergillus atro-purpureus Zimm. 265 p. 218 Java; 267 p. 75 Fig. 46 Java; 268 Java.
2009. A. candidus Link. 175 p. 240 Java; B.
2010. A. candidus Link subsp. tjibodensis Penz. et Sacc. 175 p. 240 Java; B.
2011. A. niger v. Tieghem 119 p. 225 Java.
2012. A. Oryzae Went 67a p. 318—319 Java.
2013. A. parasiticus Speare 62a Java.
2014. A. Penicilliopsis Hennings 83 p. 65 Java; 190 Java; 192 Java; B.
2015. A. sulfureus Wehmer 119 p. 225 Java.
2016. Penicillium candidum Link 175 p. 241 Java; B.
2017. P. cicadinum v. Höhnel 86 p. 131 Java.
2018. P. nigrescens Jungh. 107 p. 5 Fig. 3 Java; 142 p. 307 Java.
2019. Gliocladium pulchellum Penz. et Sacc. 175 p. 242 Java; 176 p. 99 Taf. LXVII Fig. 4 Java.
2020. Ovularia Bixae Rac. 119 p. 226 Java; 190 Java; 264 p. 854 Java; B.
2021. Sporotrichum radicicolum Zimm. 265 p. 218 Java; 267 p. 61—62 Fig. 39 Java; 268 Java.
2022. Xenopus farinosus Penz. et Sacc. 175 p. 240 Java; 176 p. 98 Taf. LXVI Fig. 3 Java; B
2023. Botrytis monilioides Penz. et Sacc. 175 p. 241 Java; 176 p. 98—99 Taf. LXVII Fig. 1 Java.
2024. B. ramosa Pers. 129 p. 608 Java, Sumatra.
2025. B. tenella Sacc. 175 p. 241 Java.
2026. B. vulgaris Fr. 175 p. 241 Java; B.
2027. Physospora spiralis Penz. et Sacc. 175 p. 241 Java; 176 p. 99 Taf. LXVII Fig. 2 Java; B.
2028. Sepedonium chrysospermum (Bull.) Fr. 175 p. 240 Java.
2029. Verticillium Sacchari Went. 237 Java.
2030. Acrostalagnus cinnabarinus Corda 175 p. 241 Java; B.
2031. Spicaria elegans (Corda) Harz. 175 p. 241 Java.
2032. Trichothecium javanicum Koord. 119 p. 226 Abb. 36 Fig. 1—5 Java.
2033. T. mútatum Jungh. 107 p. 4 Fig. 2 Java; 142 p. 307 Java.
2034. Cephalothecium roseum Corda 175 p. 242 Java; B.
Arthrobotryon Beccarianum Ces. 37 p. 25 Sarawak.
2035. Mycogone echinulata Penz. et Sacc. 175 p. 242 Java; 176 p. 100 Taf. LXVIII Fig. 1 Java; B.

2036. M. flava Zimm. 265 p. 218 Java.
2037. Ramularia Batatae Rac. 190 Java.
2038. R. Catappae Rac. 190 Java; 47 p. 68 Krakatau; 119 p. 226 Java.
2039. R. Eriodendri Rac 15 Java; 190 Java; 264 p. 804 Java; B.
2040. R. Scaevolae Rac. 190 Java; B.
2041. R. undulata Bern. 18 Java.
2042. Cercosporella atropunctata Rac. 190 Java.
2043. Trinacrium subtile Riess subsp. tjibodense Penz. et Sacc. 175 p. 243 Java; B.
2044. Triposporina uredinicola v. Höhnel 93 p. 73 Fig. 7 Java.

Fam. **Dematiaceae.**

2045. Coniosporium Bambusae Thüm. 175 p. 243 Java; 176 p. 100 Taf. LXVIII Fig. 2 Java; B.
2046. Torula bogoriensis-rubra de Kruyff 197a Java.
2047. T. glomerulosa Penz. et Sacc. 175 p. 243 Java; 176 p.100 Taf. LXVIII Fig. 3 Java; B.
2048. T. heteromorpha Penz. et Sacc. 175 p. 244 Java; 176 p. 100 Taf. LXVIII Fig. 4 Java; B.
2049. Hormiscium pannosum (Aut.?) 197 p. 25—26 Fig. 15 Java.
2050. Thielaviopsis paradoxa (de Seynes) v. Höhnel 113 p. 627 Java; 225 Java; 229 Java; 230 Java; 238 Java; 240 Java; (überal als Thielaviopsis ethaceticus Went.) B.
2051. Stachybotrys Elasticae Koord. 118 p. 307 Java; 119 p. 227 Taf. 1—5 Abb. 37 Fig. 1—5 Java.
2052. Periconia Coffeae Zimm. 262 p. 144 Fig. 18 Java.
2053. P. Elasticae Koord. 118 p. 308 Java; 119 p. 229 Abb 39 Fig. 1—6 Java.
2054. P. javanica Koord. 118 p. 307 Java; 119 p. 228 Abb. 38 Fig. 1—6 Java.
2055. P. nigripes (Peck) Sacc. 175 p. 244 Java; B.
2056. P. Pusaethae v. Höhnel 93 p. 73 Java.
2057. P. pycnospora Fres. 175 p. 244 Java.
2058. Trichobotrys pannosa Penz. et Sacc. 175 p. 245 Java; 176 p. 101 Taf. LXIX Fig. 2 Java; B.
2059. Nigrospora javanica Palm 160 p. 17 Java.
2060. N. Panici Zimm. 160 p. 18 Fig. 11 Java; 265 p. 220 Fig. 7 Java.
2061. Trichosporium arborescens Penz. et Sacc. 175 p. 245 Java; 176 p. 101—102 Taf. LXIX Fig. 3 Java; B.
2062. T. Cerealis (Thüm.) Sacc. 175 p. 245 Java; B.
2063. T. muricatum Wakker 230 Java.
2064. T. olivatrum Sacc. 175 p. 245 Java; B.
2065. Campsotrichum elegans Penz. et Sacc. 175 p. 244 Java; 176 p. 101 Taf. LXIX Fig. 1 Java; B.

2066. Glenospora Elasticae Koord. 119 p. 230 Abb. 40 Java.
Sporoglena velutina Sacc. 71 p. 40 Deutsch Neu-Guinea; 214 p. 64 Deutsch Neu-Guinea.
2067. Catenularia echinata Wakker 230 Java.
2068. C. Elasticae Koord. 118 p. 308 Java; 119 p. 230 Abb. 41 Fig. 1—4 Java.
2069. Circinotrichum microspermum v. Höhnel 86 p. 137 Java.
Chloridium microsporum Ces. 37 p. 26 Sarawak.
C. lunulatum Ces. 37 p. 25—26 Sarawak.
2070. Fusicladium Elasticae Koord. 118 op. 308 Java; 119 p. 231 Abb. 42 Java.
2071. F. Vanillae Zimmerm. 131 p. 195 Java; 266 p. 480 Fig. 10 Java.
2072. Scolecotrichum Cinnamomi Rac. 190 Java.
2073. S. Musae Zimm. 265 p. 220 Java.
2074. Cladosporium javanicum Wakker 228 Java; 230 Java.
2075. Cladotrichum mitratum Penz. et Sacc. 175 p. 246 Java; 176 p. 102 Taf. LXIX Fig. 4 Java; B.
2076. C. socium Penz. et Sacc. 176 p. 34 Java.
2077. Clasterosporium Elasticae Koord. 118 p. 308 Java; 119 p. 232 Abb. 43 Java.
2078. C. javanicum Koord. 118 p. 308 Java; 119 p. 232 Abb. 44 Java.
2079. Helminthosporium bogoriense Penz. et Sacc. 175 p. 247 Java; 176 p. 103 Taf. LXX Fig. 3 Java B.
H. decorum Ces. 37 p. 25 Taf IV Sarawak.
2080. H. Elasticae Koord. 118 p. 308 Java; 119 p. 233 Abb. 45 Java.
2081. H. geniculatum Tracy et Earle 160 p. 15 Fig. 9, 10 Java.
2082. H. gigasporum Berk et Br. subsp. javanicum Penz. et Sacc. 175 p. 247 Java; 176 p. 103-104 Taf. LXX Fig. 4 Java; B.
2083. H. gramineum Rab. Java; 160 p. 13 Fig. 7—8 Java.
2084. H. incurvatum Bern. 15 Java.
2085. H. macrocarpum Grev. 175 p. 247 Java; B.
2086. H. nodipes Penz. et Sacc. 175 p. 246 Java; 176 p. 103 Taf. LXX Fig. 2 Java; B.
2087. H. Oryzae v. Breda de Haan 32 Java.
2088. H. Ravenelii Berk. et Curt. 79 p. 147 (Helminthosporium crustaceum Hennings) Java; 87 p. 81 Java.
2089. H. Theae Bern. 18 Java; 21 Java; 190 Java.
2090. Brachysporium obovatum (Berk.) Sacc. 175 p. 247 Java; 176 p. 104 Java; B.
2091. Napicladium Elasticae Koord. 118 p. 308 Java; 119 p. 234 Abb. 46 Java.
2092. N. Andropogonis Zimm. 265 p. 219 Fig. 6 Java.
2093. N. Janseanum Rac. 101 p. 439 (Omo mentek) Java; 190 Java.
2094. Acrothecium lunatum Wakker 230 Java.

2095. Acrotheciella javanica Koord. 118 p. 309 Java; 119 p. 251 Abb. 61 Java.
2096. Sporodesmium bogoriense Penz. et Sacc 175 p. 248 Java; 176 p. 104 Taf. LXXI Fig. 1 Java; B.
2097. S. Cinchonae Koord. 119 p. 234, 235 Abb. 46 Java; 197 p. 29—30 Fig. 16 Java.
S. cirrhatum Ces. 37 p. 26 Sarawak
S. erineoides Ces. 37 p. 26 Fig. IV Sarawak.
2098. S. tenellum Penz. et Sacc. 175 p. 248 Java; 176 p. 104 Taf. LXXI Fig. 2 Java.
2099. Xenosporium mirabile Penz. et Sacc. 175 p. 248 Java; 176 p. 105 Taf. LXXI Fig. 3 Java; B.
2100. Macrosporium communʼe Rabenh. 119 p. 236 Java.
2101. M. fici Ell. et Koll. 47 p. 68 Krakatau.
2102. M. Solani Ell. 198 p. 286 Java; 250 p. 6 Java.
2103. Alternaria pulvinʼata C. et M. 43 p. 56 Java.
2104. Fumago vʼagans Pers. 197 p. 5 Java.
2105. Cercospora Amorphophalli Hennings 79 p. 147—148 Java.
2106. C. coffeicola Cooke 264a p. 641 Java; 265 p. 219 Java; 267 p. 38—40 Fig. 25 Java; 268 Java.
2107. C. coffeifoliella Zimm. 260 p. 441 Java.
2108. C. Elasticae Zimm. 118 p. 308 Java; 119 p. 237 Abb. 48 Java; 237 p. 17 Java.
2109. C. Koepkei Krüger 125 Java; 229 Java; 239 Taf. III Fig. 2 p. 6 Java.
2110. C. Mangiferae Koord. 119 p. 236—237 Abb. 47 Java.
2111. C. Musae Zimm. 265 p. 219 Java.
2112. C. nicotianae Ell. en Ev. 100 p. 10—13 Sumatra; 190 Java.
2113. C. Rhynacanthi v. Höhnel 93 p. 76 Java.
2114. C. Sacchari v. Breda de Haan 229 Java; 239 p. 5 Taf. III Fig. 1 Java.
2115. C. Theae v. Breda de Haan 32 Java; 264 p. 53 Java.
2116. C. Timorensis Cooke 38 p. 38 Timor.
2117. C. Ubi Rac. 190 Java.
2118. C. vaginae Krüg. 125 Java; 224 Java; 229 Java; 239 Taf. I Fig. 1 p. 4; p. 6 Taf. III Fig. 2 Java.
2119. C. Vignae Rac. 187 p. 66 Java.
2120. C. Villebruneae v. Höhnel 93 p. 75 Java.
2121. Helicosporium intermedium Penz. et Sacc. 175 p. 249 Java; 176 p. 105 Taf. LXXI Fig. 4 Java; B.
2122. H. intermedium Penz. et Sacc. var. palmigenum Penz. et Sacc. 175 p. 249 Java; 176 p. 105 Java.

Fam. **Stilbaceae.**

2123. Stilbella candidula (Penz. et Sacc.) 175 p. 249 (Stibum candidulum Penz. et Sacc.) Java; 176 p. 106 Taf. LXXII Fig. 2

(Stilbum candidulum Penz. et Sacc.) Java; B.

2124. S. cinnabarina (Mont.) 175 p. 249 (Stilbum cinnabarinum) Java; 219 p. 261 Deutsch Neu-Guinea; 273 (Stilbum cinnabarinum Mont.) Java; B.

S. clavulata (Ces.) 37 p. 25 (Stilbum clavulatum Ces.) Sarawak.

2125. S. Coffeae (Zimm.) 262 p. 144 Fig. 19 (Stilbum Coffeae Zimm.) Java.

2126. S. Elasticae Koord. 118 p. 308 Java; 119 p. 238 Abb. 49 Java.

2127. S. fructigena (Penz. et Sacc.) 175 p. 250 (Stilbum fructigenum Penz. et Sacc.) Java; 176 p. 106—107 Taf. LXXIII Fig. 1 (Stilbum fructigenum Penz. et Sacc.) Java; B.

2128. S. Heveae (Zimm.) Bern. 20 Java; 79 p. 148 Java; 269 p. 21 (Stilbum Heveae Zimm.) Java.

2129. S. incarnata (Jungh.) 107 p. 6—7 Fig. 4 (Stilbum incarnatum Jungh.) Java; 142 p. 307 (Stilbum incarnatum Jungh.) Java; 230 (Stilbum incarnatum Wakker) Java.

2130. S. javanica (Hennings) 70 p. 227 Taf. VIII Fig. 7 (Stilbum javanicum Hennings) Java.

S. Ledermannii Syd. 119 p. 26 Deutsch Neu-Guinea.

2131. S. longipes (Penz. et Sacc.) 175 p. 251 (Stilbum longipes) Java; 176 p. 107 Taf. LXXIII Fig. 4 (Stilbum longipes) Java; B.

2132. S. macrospora (Penz. et Sacc.) 175 p. 249 (Stilbum macrosporum) Java; 176 p. 105—106 Taf. LXXII Fig. 1 (Stilbum macrosporum Penz. et Sacc.) Java; B.

2133. S. minutula (Penz. et Sacc.) Rant 175 p. 250 (Stilbum minutulum) Java; 176 p. 106 Taf. LXXII Fig. 4 (Stilbum minutulum) Java; 197 p. 24—25 Fig. 14a-d Java; B.

2134. S. nana Bern. 21 Java; 64 Java.

2135. S. ochroleuca (Penz. et Sacc.) 175 p. 250 (Stilbum ochroleum) Java; 176 p. 106 Taf. LXXII Fig. 3 (Stilbum ochroleucum) Java;

2136. S. pallidula (Penz. et Sacc.) 175 p. 250 (Stilbum pallidulum) Java; 176 p. 107 Taf. LXXIII Fig. 2 (Stilbum pallidulum Penz. et Sacc.) Java; B.

2137. S. parviceps (Penz. et Sacc.) 175 p. 250 (Stilbum parviceps) Java; 176 p. 107 Taf. LXXIII Fig. 3 (Stilbum parviceps) Java.

2138. S. perexigua (Penz. et Sacc.) 175 p. 251 (Stilbum perexiguum) Java; 176 p. 107-108 Taf. LXXIV Fig. 1 (Stilbum perexiguum) Java.

2139. S. pistillaris (Lév.) 129 p. 608 (Stilbum pistillare) Java.

2140. S. rigida (Pers.) 107 p. 5 (Stilbum rigidum Pers.) Java; 142 p. 307 (Stilbum rigidum) Java.

2141. S. Theae Bern. 18 Java; 21 Java.

2142. Corallodendron leucocephalum Jungh. 107 p. 7 Fig. 5 Java; 142 p. 307 Java.

2143. Ciliciopodium macrosporum Penz. et Sacc. 175 p. 252 Java; 176 p. 109 Taf. LXXV Fig. 2 Java. B.

2144. Actiniceps Thwaitesii Berk. et Br. 118 p. 308 Java; 119 p. 239 Java; 175 p. 251 Java; 176 p. 108 Taf. LXXIV Fig. 2 Java.
2145. CoremiumElasticae Koord. 118 p. 308 Java; 119 p. 239 Abb. 50 Java.
2146. Lindaumyces javanicus Koord. 118 p. 308 Java; 119 p. 240 Abb. 51 Java.
2147. Isaria abietina v. Höhnel 86 p. 142 Fig. 28 Java.
2148. I. albo-rosea Penz. et Sacc. 175 p. 252 Java; 176 p. 108 Taf. LXXIV Fig. 4 Java.
2149. I. amorpha v. Höhnel 86 p. 141 Java.
2150. I. crinita Lloyd 134 p. 951 Java.
2151. I. dendroidea Jungh. 107 p. 7 Fig. 6 Java; 142 p. 308 Java.
2152. I. gracilis Vosseler 86 p. 140 Java.
2153. I. rammosissima Zoll. et Morr. 67a p. 300 Java; 271 p. 376 Java.
2154. I. thyrsoidea Penz. et Sacc. 175 p. 251 Java; 176 p. 108 Taf. LXXIV Fig. 3 Java.
2155. I. destructor Sor. 131b (Metarrhizum Anisopliae (Sor.)) Java.
2156. Gibellula elegans Hennings 79 p. 148 Java.
2157. G. eximia v. Höhnel 86 p. 143 Java.
2158. G. phialobasia Penz. et Sacc. 175 p. 252 Java; 176 p. 108-109 Taf. LXXV Fig. 1 Java.
2159. Arthrosporium chrysocephalum Penz. et Sacc. 175 p. 253 Java; 176 p. 109 Taf. LXXV Fig. 4 Java; B.
2160. A. tenue Penz. et Sacc. 175 p. 253 Java; 176 p. 109 Taf. LXXV Fig. 3 Java.
2161. Graphium Coffeae Zimm. 262 p. 145 Fig. 22 Java.
2162. G. coralloides (Berk. et C.) v. Höhnel 87 (Cordierites coralloides Berk. et C.) Java.
2163. G. Desmazierii Sacc. 175 p. 253 Java; B.
2164. G. leucophaeum Penz. et Sacc. 175 p. 253 Java; 176 p. 110 Taf. LXXVI Fig. 1 Java; B.
G. stilboides Corda 121 Timor.
2165. Sporocybe acicularis Penz. et Sacc. 175 p. 254 Java; 176 p. 110 Taf. LXXVI Fig. 3 Java; B.
2166. S. apiculata Penz. et Sacc. 175 p. 254 Java; 176 p. 110 Taf. LXXVI Fig. 2 Java; B.
2167. S. longicapitata Zimm. 262 p. 145 Fig. 21 Java.
2168. S. minuta Zimm. 262 p. 145 Fig. 20 Java.
2169. S. subulata Berk. 142 p. 56 (Pachnocybe subulata Berk.) Java.
2170. Harpographium nematosporum Penz. et Sacc. 175 p. 255 Java; 176 p. 112 Taf. LXXVIII Fig. 1 Java; B.
2171. Macrostilbum radicosum Pat. 166 p. 197 Java.
2172. Rhombostilbella rosea Zimm. 265 p. 221 Java; 267 p. 44—45 Fig. 30 Java; 268 Java.

2173. Stilbothamnium javanicum Hennings et Nyman 76 p. 37 Java.
S. novo-guineense Syd. 219 p. 261 Deutsch Neu-Guinea.
2174. S. Penicillopsis Hennings et Nyman 76 p. 37 Java.
2175. S. togo ënse Hennings 92 p. 21 Java.
2176. Anthromycopsis Broussonetiae Pat. et Trab. subsp. minor Penz. et Sacc. 175 p. 154 Java; 176 p. LXXVI Fig. 4 p. 110—111 Java; B.
2177. Didymobotryum atrum Pat. 175 p. 254 Java; 176 p. 111 Taf. LXXVII Fig. 1 Java.
2178. D. atrum Pat. subsp. pachysporum Penz. et Sacc. 175 p. 25 Java; 176 p. 111 Taf. LXXVII Fig. 1b Java; B.
2179. D. obesum Penz. et Sacc. 175 p. 255 Java; 176 p 111 Taf. LXXVII Fig. 2 Java; B.
2180. Didymobotryopsis parasitica Hennings 79 p. 149 Java.
2181. Didymostilbe Coffeae Hennings 79 p. 148 Java.
2182. Podosporium Casuarina Penz. et Sacc. 175 p. 255 Java; 176 p. 111 Taf. LXXVII Fig. 3 Java; B.
2183. P. tjibodense Penz. et Sacc. 175 p 255 Java; 176 p. 111—112 Taf. LXXVII Fig. 4 Java; B.
Sarophorum Ledermannii Syd. 219 p. 260—261 Fig 3a-d. Deutsch Neu-Guinea.

Fam. **Tuberculariaceae.**

2184. Hymenula Elasticae Koord. 118 p. 309 Java; 119 p. 241 Abb. 52 Java.
2185. H. inaequalis Penz. et Sacc. 175 p. 257 Java; 176 p. 113 Taf LXXIX Fig 1 Java; B.
2186. H. tjibodensis Penz. et Sacc. 175 p. 256 Java; 176 p. 113 Taf. LXXVIII Fig. 4 Java; B.
2187. Tuberculariа persicina Ditm. 190 Java.
2188. T. vulgaris Tode 107 p. 4 Java; 142 p. 307 Java.
2189. Tuberculariopsis anomala v. Höhnel 86 p. 147 Java.
2190. Beniowskia graminis Rac. 190 II p. 37 Java; B.
2191. Basidiobotrys Clautriavii (Pat.) v. Höhnel 86 p. 146 Fig. 29 Java; 166 p. 196 (Ceratocladium Clautriavii Pat.) Java.
2192. Dendrodochium javanicum Penz. et Sacc. 175 p. 256 Java; 176 p. 112—113 Taf. LXXVIII 3 Fig. Java; B.
2193. Dacrymycella Beyerinckii Koord. 118 p. 309 Java; 119 p. 241 Abb. 53 Java.
2194. Illosporium aureolum Penz. et Sacc. 175 p. 256 Java; 176 p. 112 Taf. LXVIII Fig. 2 Java; B.
2195. Sphaeridium javense v. Höhnel 86 p. 149 Java.
2196. Cylindricolla succinea Penz. et Sacc. 175 p. 257 Java; 176 p. 114 Taf. LXXIX Fig 3 Java; B.
2197. Necator decretus Massee 118 p. 309 Java; 119 p. 242 Abb. 54 Java; 194 p. 410 Fig. 4 Java; 195 p. 9 Taf. IV—X Java; 196 Java; 262

p. 145—147 Fig. 23—24 Java; 264 p. 53 Java; 267 p. 53—54 Fig. 35—36 Java; 268 Java.

2198. Chaetospermum Elasticae Koord. 118 p. 309 Java; 119 p. 244 Abb. 55 Java.

2199. Thozetia nivea Berk. 86 p. 149 Java.

2200. Volutella Elasticae Koord. 118 p. 309 Java; 119 p. 245 Abb. 56 Java.

2201. V. javanica v. Höhnel 86 p. 151 Fig. 31 Java.

2202. V. minima v. Höhnel 89 p. 83 Java.

2203. Volutina concentrica Penz. et Sacc. 175 p. 257 Java; 176 p. 114 Taf. LXXIX Fig. 2 Java; B.

2204. Patouillardiella javanica Penz. et Sacc. 175 p. 258 Java; 176 p. 114 Taf. LXXIX Fig. 4 Java; B.

2205. Pithomyces flavus Berk. et Br. 91 p. 52 Java; 175 p. 246 (Neomichelia melaxantha Penz. et Sacc.) Java; 176 p. 102—103 Taf. LXX Fig. 1 (Neomichelia melaxantha Penz. et Sacc.) Java; B (Neomichelia melaxantha Penz. et Sacc.).

2206. Amallospora Dacrydion Penz. 175 p. 258 Java; 172 Java; B.

2207. Fusarium colorans de Jonge 205 Java.

2208. F. Derrides Henn. 80 p. (66) Neu-Guinea; 215 p. 29 Deutsch Neu-Guinea.

2209. F. javanicum Koord. 118 p. 309 Java; 119 p. 247 Abb. 58 Java.

2210. F. rostratum Appel et Wollenw. 160 p. 9 Pl. II Java.

2211. F. Theobromae Appel et Strunk 205 Java.

2212. Epicoccum angulosum Penz. et Sacc. 175 p. 258 Java; 176 p. 114—115 Taf. LXXX Fig. 1 Java; B.

2213. E. javanicum Koord. 119 p. 249 Abb. 60 Java.

2214. Listeromyces insignis Penz. et Sacc. 175 p. 259 Java; 176 p. 115 Taf. LXXX Fig. 2 Java.

S. velutinum (Ces.) 37 p. 26 (Marosporium velutinum Ces.) Sarawak.

2215. Strumellopsis annularis (Rac.) v. Höhnel 87 p. 84 Java; 190 (Strumella annularis Rac.) Java.

2216. Hymenopsis Elasticae Koord. 118 p. 309 Java; 119 p. 249 Abb. 59 Java.

2217. H. ellipsospora (Fuck.) Sacc. 175 p. 258 Java; B.

2218. Exosporium megalosporum Penz. et Sacc. 175 p. 259 Java; 119 p. 115—116 Taf. LXXX Fig. 3 Java; B.

2219. Exosporella Symploci v. Höhnel 93 p. 76 Java.

2220. Bonordiella memoranda Penz. et Sacc. 175 p. 260 Java; 176 p. 116 Taf. LXXX Fig. 4 Java; B.

2221. Wiesneriomyces javanicus Koord. 118 p. 309 Java; 119 p. 246 Abb. 57 Java; 120 p. 329—331 Abb. Java.

2222. Spegazzinia ornata Sacc. 175 p. 260 Java.

2223. S. Meliolae Zimm. 265 p. 221 Java.

Mycelia sterilia.

2224. Hyphelia rosea Fr. 107 p. 8—9 Java; 142 p. 308 Java.
2225. Sclerotium compositum Jungh. 107 p. 25 Java; 142 p. 307 Java.
S. glumale Ces. 37 p. 26 Sarawak.
S. hypocreaemorphum Ces. 37 p. 27 Sarawak.
S. rhachidophilum Ces. 37 p. 27 Sarawak.
2226. S. Rolfsii 211 p. 324 Java.
2227. Anthina fusco-pallida Jungh. 142 p. 312 Java.
2228. Himantia citrina Zoll. 67a p. 304 Java.
2229. H. discolor Zoll. 67a p. 303 Java.
2230. H. fusco-pallida Jungh. 107 p. 34 Java.
2231. H. lactea Fr. 107 p. 34 Fig. 21 Java; 142 p. 312 Java; 144 (Himantia lactea Jungh.) Java; 273 Java.
2232. H. sulphurea Fr 67a p. 304 Java; 271 p. 385 Java; 273 Java.

Unvollständig bekannte Arten.

Agaricus nebulosus Zoll. et Mor. 271 Java; 273 Java.
A. sepulcrorum Zoll. 271 p. 390 Java; 273 Java; 144 Java.
A. Vriesii Lév. 127 p. 172 Java; 128 p. 597 Java.
Boletus arcuatus Zoll. 67a p. 305—306 Java.
B. faguarius Rumphius 204 p. 124 Ambon.
B. fecundus arboreus Rumphius 204 p. 125 Taf. LVI Fig. 2, 3 Ambon.
B. infundibiliforma Rumphius 204 p. 125 Taf. LVI Fig. 1 Ambon.
B. tertius umbraculi figura Rumphius 204 p. 126 Ambon.
B. terrestris Rumphius 204 Ambon.
B. quintus auris murina dictus Rumphius 204 p. 126 Taf. LVI Fig. 4 Ambon.
Sphaeria annulata Fr. 128 p. 16 Java.
S. alvear Ces. 37 p. 20 Sarawak.
S. Beccariana Ces. 37 p. 20 Taf. IV Sarawak.
S. bombardella Ces. 37 p. 20 Sarawak.
S. columnaris Jungh. 107 p. 17. Java; 142 p. 310 Java.
S. confinis Lév. 128 p. 617 Java.
S. deusta Hoffm. 128 p. 616 Java.
S. hypoxantha Lév. 129a p. 260 Java.
S. incrassata Jungh. 108 p. 288 Java.
S. javanica Zipp. 128 p. 616 Java.
S. olivaeformis Lév. 144 Java; 273 Java.
S. osculosa Pers. 176a p. 180—181 Rawak.
S. pilulaeformis Jungh. 170 p. 16 Java; 144 p. 309 Java.
S. ptychocephala Lév. 273 Java.
S. rhopalina Kunze 144 Java; 273 Java.
S. setacea Pers. 128 p. 617 Java.
S. scoparia Lév. 128 p. 616 Java.
S. Zanthoxyli Lév. 129a Java.

Lichenes.

Ascolichenes.

Pyrenocarpeae.

Fam. **Verrucariaceae.**

1. Verrucaria aurantiaça Eschw. 110 p. 485 Java; 273 (V. macrospora Hepp.) Java.
2. V. balia Kremp. 124 p. 48 Borneo.
3. V. catevaria Fée 110 p. 486 Java.
4. V. complanata Mont. 110 p. 485 Java.
5. V. confraga Kremp. 124 p. 50 Borneo.
6. V. diremta Nyl. 124 p. 50 Borneo.
7. V. ectypa Kremp. 124 p. 47 Borneo.
8. V. elaeophaena Kremp. 124 p. 48 Tafel I Fig. 14 Borneo.
9. V. gravastella Kremp. 124 p. 48 Borneo.
10. V. interducta Nyl. 154 p. 134 Java.
11. V. mamillana Ach. 154 p. 134 Java.
12. V. mamillaris Hepp. 110 p. 485 Java; 273 Java.

12a. V. melaloma 176a p. 182—183 Rawak.

13. V. melanobapha Kremp. 123, 124 p. 51 Borneo.
14. V. monocarpa Kremp. 123 Borneo.
15. V. nitida (Ach.) Fr. 110 p. 485 Java; 154 p. 134 (V. nitida Schrad.) Java.
16. V. pudibunda Mont. et v. d. Bosch 110 p. 487 Java.
17. V. punctiformis Pers. 110 p. 487 Java.
18. V. pupula Ach. 154 p. 135 Java.
19. V. seriata Hepp. 110 p. 486 Java; 273 Java. 148 (Pyrenula ser. Hepp.) Java.
20. V. spectabilis Kremp. 124 p. 50 Borneo.
21. V. stigmatella Ach. 110 p. 487 Java.
22. V. stigmatella Ach. var. lactea Ach. 110 p. 487 Java.
23. V. subtrahens Nyl. 154 p. 135 Java.
24. V. subtrahens Nyl. var. microspora Kremp. 124 p. 49 Borneo.
25. V. subvelata Nyl. 124 p. 49 Borneo.
26. V. thelena Ach. 110 p. 485 Java.
27. V. tropica Ach. 110 p. 486 Java; 154 p. 135 Java; 273 (V. tristis Hepp) Java.
28. V. umbonata Hepp 110 p. 486 Java; 273 Java.

Fam. **Pyrenulaceae.**

29. Porina albicera Kremp. 123, 124 p. 53 (Verrucaria) Borneo.
30. P. chiodectonoides Fée 110 p. 483 Java.
31. P. convelata Kremp. 124 p. 52 (Verrucaria) Borneo.

32. P. endochrysa Mont. 110 p. 183 Java.
33. P. fiuturae Kremp. 124 p. 54 (Verrucaria) Borneo.
34. P. javanica (Hepp) 110 p. 486 (Verrucaria javanica Hepp) Java; 146 Java; 273 (Verrucaria jav. Hepp) Java.
35. P. limbulata Kremp. 123, 124 p. 51 Tafel I Fig 17 (Verrucaria) Borneo.
36. P. mastoidea (Ach.) Fée 110 p. 483 Java.
    P. multiseptata Müll. 145 p. 16 Deutsch Neu-Guinea.
    P. praestans (Nyl.) Müll. 145 p. 16 Deutsch Neu-Guinea.
37. P. ravida Kremp. 124 p. 52—53 Taf. I Fig. 19 (Verrucaria) Borneo.
38. P. rufula Kremp. 123, 124 p. 53 (Verrucaria) Borneo.
39. P. virescens Kremp. 123, 124 p. 53 Taf. I Fig. 20 (Verrucaria) Borneo.
40. Pyrenula Antoniae Kremp. 124 p. 51 Tafel I Fig. 15 (Verrucaria) Borneo.
41. P. aspistea Ach. 110 p. 485 (Verrucaria aspistea (Ach.) Mont.) Java.
42. P. aspistea Ach. var. lutea Kremp. 124 p. 49 Borneo.
43. P. copromya Mass. 122 p. 863 Ambon.
43a. P. fuscata Pers. 176a p. 182 Rawak.
43b. P. globosa Pers. 176a p. 181—182 Rawak.
44. P.? indica Mass. 122 p. 863 Ambon.
45. P. marginata Hook. 110 p. 486 (Verrucaria marginata (Hook.) Mont.) Java; 273 (V. marginata (Hook.) Mont.) Java. B.
46. P. marginata Hook. var. fulva Kremp. 124 p 49 (Verrucaria) Borneo; 148 (Verrucaria marginata Hook var. fulva Kremp.) Java.
47. P. myriocarpa Fée 110 p. 486 (Verrucaria myriocarpa (Fée) Mont.) Java.
48. P. Santensis (Tuckerm.) Mull. 124 p. 51 Tafel I Fig. 16 (Verrucaria Santensis Tuckerm.) Borneo; 145 p. 15 Timor.
48a. P. sphaerica Pers. 176a p. 182 Rawak.
49. P. tenella Müll. Arg. 151 p. 288 Java.
50. Anthracothecium Doleschalli Mass. 122 p. 863 Ambon.
51. A. libricolum (Fée) Müller 145 p. 16 Timor; 147 p. 139 Timor.
52. A. variolosum Müller 103 p. 13 Waigeoe.

Fam. **Trypetheliaceae.**

53. Tomasellia Zollingeri Müll. Arg. 151 p. 287 Java.
54. Melanotheca arthonioides Nyl.? 124 p. 54 Borneo.
55. M. coccorum (Mass.) 122 p. 871 Tafel VIII a-i (Micromma cocorum Mass.) Ambon.
56. Trypethelium chrysostomum Kremp. 124 p. 57 Borneo.
57. T. cinereo-rosellum Kremp. 124 p. 56 Tafel I Fig. 26 Borneo.
    T. grossum Müller Arg. 145 p. 15 Deutsch Neu-Guinea; 147 p. 139—140 Neu-Guinea.
58 T. leucostomum Kremp. 124 p. 57 Borneo.

59. T. megaleium Kremp. 124 p. 55 Borneo.
60. T. meristosporum Mont et v. d Bosch 110 p. 487.
61. T. nigritulum Nyl. 124 p. 58 Talel I Fig. 25 Borneo.
62. T. peranceps Kremp. 124 p. 55 Borneo.
63. T. pyrenuloides Mont. 110 p. 488 Java.
64. T. Sprengelii Ach. 154 p. 135 Java.
65. T. stramineum Kremp. 124 p. 56—57 Borneo.

Fam. **Astrotheliaceae.**

66. Astrothelium conicum Eschw. 124 p. 58 Borneo.
67. A. galbineum Kremp. 124 p. 58—59 Tafel I Fig. 27 Borneo.
68. A. leucothelium Nyl. 124 p. 58 Borneo.

Fam. **Strigulaceae.**

69. Phylloporina epiphylla (Fée) Müll. 103 p. 13 Englisch Neu-Guinea; 104 p. 183 Sumatra.
70. Strigula complanata Mont. 124 p. 54 Borneo.
71. S. Féei Mont. 110 p. 490 Java; 122 p. 863 Ambon; 273 (Verrucaria Zollingeri Hepp) Java.
72. S. insignis Jatta 103 p. 13 Neu-Guinea.
73. S. melanophthalma Mont. 110 p. 490 Java; 273 Java.

Gymnocarpeae.
(Coniocarpineae.)

Fam. **Caliciaceae.**

74. Calicium javanicum Mont. et v. d. Bosch 110 p. 483 Java.

Fam **Cypheliaceae.**

75. Pyrgillus javanicus (Mont.) Nyl. 122 p. 871 Tafel VIII k-q Ambon.
76. Tylophoron annulatum Kremp. 124 p. 11 Borneo.
77. T. indicum Kremp. 124 p. 11 Tafel. 1 Fig. 28 Borneo.

Fam. **Sphaerophoraceae.**

78. Sphaerophoron compressus Koelr. 98 Java.
79. S. australe Laur. 110 p. 481 Java.

Fam. **Arthoniaceae.**

80. Arthonia (Coniangium) aleteum (Mass.) 122 p. 876 (Coniangium aleteum Mass) Ambon.
81. A. Amboinensis Müll. 153 p. 132 Ambon.
82. A. (Coniocarpon) gracilis (Eschw.) 122 p. 869 (Coniocarpon gracile (Eschw.) Mass) Ambon.
83. A. gregaria var. adspersa (Mont.) Müll. 153 p. 132 Ambon.
84. A. lilacina Mont. et v. d. Bosch 110 p. 478 Java.
85. A. marginata Duf. 110 p. 479 Java.
86. A. (Naevia) mazosia (Mass.) 122 p. 867 (Naevia mazosia Mass.) Ambon.

87. A. miltina Kremp. 124 p. 42 Borneo.
88. A. polymorpha Ach. 124 p. 42 Borneo.
89. Arthothelium (Myriostigma) candidum (Kremp.) 123. 124 p. 45 Tafel 1 Fig. 29 (Myriostigma candidum Kremp.) Borneo.
90. A. oasis Mass. 122 p. 868 Ambon.
91. A. picilum Mass. 122 p. 867 Ambom.

Fam. **Graphidaceae.**

92. Opegrapha angustata (Esch.) Mont. 110 p. 468 Java.
93. O. apomelaena Mass. 122 p. 864 Ambon.
94. O. comma Ach. 110 p. 467 Java.
95. O. crassilabra Mont. et v. d. Bosch 110 p. 468 Java.
96. O. crenulata Mont. et v. d. Bosch. 110 p. 467 Java.
97. O. dichaenella Nyl. 154 p. 134 Java.
98. O. elegans (Ach.) Sm. 110 p. 467 Java; 154 p. 133 (Graphis elegans Ach.) Java.
99. O. fagorum Mass. 122 p. 864 Tafel VI a-e Ambon.
100. O. intricata (Fée) Mont. 110 p. 469 Java.
101. O. leptochroma Mass. 122 p. 865 Ambon.
102. O. marginata Mont et v. d. Bosch 110 p. 470 Java.
O. melanophthalma Müll. 145 p. 14 Deutsch Neu-Guinea.
103. O. nana Fée 110 p. 467 Java,
104. O. ovata Fée 110 p. 466 Java.
105. O. prosiliens 110 p. 468 Java.
106. O. rimulosa Mont. 110 p. 467 Java; 144 Java; 273 Java.
107. O. scalpturata (Ach.) 110 p. 468 Java.
108. O. scaphella Ach. 110 p 467 Java.
109. O. scripta Ach. 110, p. 467 Java,
110. O. sordida (Fée) Mont. 110 p. 469 Java.
111. O. tectiformis Mont. et v. d. Bosch 110 p. 469 Java.
112. O. trilocularis Müll. 153 p. 132 Ambon.
112a. O. undulata Pers. 176a p. 184 Rawak.
113. Graphis Afzelii Ach. 110 p. 470 Java; 144 Java; 273 Java.
114. G. Afzelii Ach. var. Bornensis Kremp. 124 p. 37 Borneo
115. G. anfractuosa Eschw. var. argutula Kremp. 124 p. 34 Borneo.
116. G. aphanes Mont. et v. d Bosch 110 p. 474 Java.
117. G. atro-alba Kremp 124 p. 38 Borneo.
118. G. attenuata Kremp. 124 p. 31 Borneo.
119. G. caesiopruinosa Kremp. 124 p. 32 Borneo.
120. G. campetes Kremp. 124 p. 30 Borneo.
121. G. chlorocarpa Fée 110 p. 472 Java.
122. G. chlorocarpoides Nyl. 154 p. 133 Java.
123. G. chlorotica Mass. 122 p. 865 Ambon.
124. G. chrysenteron Mont. 110 p. 473 Java; 144 Java; 273 Java.

125. G. commutabilis Kremp. 124 p. 33 Borneo.
126. G. computata Kremp. 124 p. 36 Borneo.
127. G. (Sarcographa) concisa Kremp. 124 p. 31 Borneo.
128. G. (Solenographa) confluens (Mass.) 122 p. 866 Tafel VII a (Solenographa confluens Mass.) Ambon.
129. G. convariata Kremp. 124 p. 30 Borneo.
130. G. (Fissurina) crassilabra (Mont. et v. d. Bosch) 110 p. 480 (Fissurina crassilabra Mont. et v. d. Bosch) Java.
131. G. diversa Nyl. 124 p. 38 Tafel I Fig. 5 Borneo.
132. G. diversa Nyl. form. cohibens Nyl. 154 p. 133 Java.
133. G. Dumastii Fée 124 p. 36 Borneo.
134. G. duplicata Ach. 110 p. 474 Java.
135. G. epixantha Mont. et v. d. Bosch 110 p. 472 Java.
136. G. (Fissurina) grammitis (Fée) 110 p. 479 (Fissurina gr. (Fée) Mont.) Java.
136a. G. erythrella (Mont. et v. d. Bosch) 110 p. 478 (Ustalia) Java.
137. G. hologlauca Nyl. 154 p. 133 Java.
138. G. hololeuca Mont. 110 p. 473 Java.
139. G. hypoglauca Kremp. 124 p. 39 Borneo.
140. G. hypolecta Nyl. 124 p 38 Borneo.
141. G. imparilis Kremp. 124 p. 29 Borneo.
142. G. Junghuhnii Mont. et v. d. Bosch 110 p. 471 Java.
143. G. leiogrammodes Nyl. var. albicera Kremp. 124 p. 33 Borneo.
144. G. leprevosth (Fée) Mont. 110 p. 475 Java.
145. G. leptocarpa Fée 124 p. 37 Borneo.
146. G. leucoparypha Kremp. 124 p. 35 Borneo.
147. G maeandrata Kremp. 124 p. 36 Borneo.
148. G. Montagnei v. d. Bosch 110 p. 472 Java; 154 p. 133 Java.
149. G. (Fissurina) nitida (Eschw.) 110 p. 479 (Fissurina nitida (Eschw.) Mont.) Java.
150. G. pallido-ochrea Kremp. 124 p. 32 Tafel I Fig. 7 Borneo.
151. G. Pavoniana Fée 124 p. 38 Borneo.
152. G. pudica Mont. et v. d. Bosch. 110 p. 474 Java.
153. G. pyrrhocheila Mont. et v. d. Bosch 110 p. 471 Java.
154. G. ramificans Kremp. 124 p. 35 Borneo.
154a. G. pyrrhochroa (Mont. et v. d. Bosch) 110 p. 477 (Ustalia) Java.
155. G. Sayeri Müll. 153 p. 132 Ambon.
156. G. streblocarpa (Bél.) Mont. et v. d. Bosch 154 p. 133 Java.
157. G. streblocarpa (Bél.) Mont. et v. d. Bosch var. canariorum Kremp. 124 p. 34 Borneo.
158. G. striatula (Ach.) Nyl. 124 p. 36 Borneo.
159. G. Subinusta Leight. 124 p. 30 Borneo.
160. G. tectigera Eschw. 124 p. 38 Borneo.

161. G. tenella Ach. 103 p. 12 Waigeoe.
162. G. tumida Kremp. 124 p. 32 Borneo.
162a. G venosa Eschw. 145 p. 14 Deutsch Neu-Guinea; 176a p. 185 (Emblemia venosa) Rawak.
162b. Phaeographis (Platygramma) dendriticella Müll Arg. 147 p. 139 Neu-Guinea.
163. Graphina insulana Müll. 153 p. 132 Ambon.
163a. G fuscescens Pers. 176a p. 186 –187 (Ctesium fuscescens) Rawak.
164. G. Junghuhnii (Mass.) 122 p. 868 (Glaucinaria junghuhnii (Mass.) Ambon.
165. Phaeographina ochracea (Hepp) Müller Arg. 151 p. 285 Java; 273 (Graphis ochracea Hepp) Java; 110 p. 477 (Ustalia ochracea (Hepp) Mont. et v. d. Bosch) Java.
166. Ph. streblocarpa (Belang.) 110 p. 469 (Opegrapha streblocarpa Bélang.) Java; 122 p. 866 (Leiorreuma streblocarpum (Bélang.) Mass.) Ambon.

Fam. **Chidectonaceae.**

167. Glyphis cicatricosa Ach. 110 p. 489 Java; 144 Java; 273 Java.
168. G. finitima Kremp. 124 p. 43 Borneo.
169. G. labyrinthica Ach. 110 p. 489 Java; 122 p. 869 Ambon; 154 p. 134 Java.
170. G. labyrinthica Ach. var. prorecta Kremp. 124 p. 42 – 43 Borneo.
171. G. labyrinthica Ach. var. insulata Kremp. 124 p. 42 – 43 Borneo.
172. G. (Actinoglyphis) Leprieurii Mont. 110 p. 490 Java; 122 p. 869 Ambon; 124 p. 44 Tafel I Fig. 10 (Actinoglyphis heteroclita Mont.) Borneo; 144 (Gl. heter. Mont. et Gl. heterostycha Mont.?) Java; 154 p. 134 (G. heter. Mont.) Java; 273 (G. heter. Mont.) et Gl. heterostycha Mont.?) Java.
173. G. tricosa Ach. 110 p. 490 (Medusella tricosa (Ach.) Mont.) Java.
174. G. verrucosa Mont. 110 p. 489 Java.
175. Enterodictyon oblongellum Müll. Arg. 151 p. 285 Java.
176. Chiodecton Boschianum Mont. 110 p. 488 Java.
177. Ch. farinaceum Mont. 110 p. 488 Java.
178. Ch. laevigatum Fée var. spermogonifera 122 p. 869 Ambon.
179. Ch. malacum Kremp. 124 p. 45—46 Borneo.
180. Ch. obscurascens Kremp. 124 p. 46 Borneo.
181. Ch. paradoxum (Mass.) Kremp. 122 p. 870 Ambon.
182. Ch. (Enterographa) pertricosa Kremp. 124 p. 39 (Enterographa pertr. Kremp.) Borneo.
Ch. rubrocinctum Nyl. 145 p. 14 Deutsch Neu-Guinea.
183. Ch. rupestre Kremp. 124 p. 45 Borneo.
183a. C. sphaerale Ach. 154 p. 134 Java.

Fam. **Dirinaceae.**

184. Dirina multiformis Mont. et v. d. Bosch 110 p. 453 Java.

Fam. **Roccellaceae.**

185. Roccella fuciformis D. C. 110 p. 430 Lombok; 273 Java; B.
186. R. Montagnei Bélang. 97 p. 175 Java; Sumatra.
187. R. phycopsis Ach. 97 p. 175 Java; Sumatra.
188. R. tinctoria D. C. 110 p. 430 Java; 273 Lombok.

Cyclocarpineae.

Fam. **Lacanactidaceae.**

189. Lecanactis confluens (Fée) Mont. 110 p. 475 Java.
190. L. conglomerata (Fée) Mont. et v. d. Bosch 110 p. 476 Java.
191. L. exaltata Mont. et v. d. Bosch 110 p. 476 Java.
192. L. lecanoroides (Fée) Mont. et v. d. Bosch 110 p. 476 Java.
193. L. planiuscula Mont. v. d. Bosch 110 p. 475 Java.
194. Schismatomma chlorochroa (Kremp.) 123, 124 p. 40 Tafel I Fig 11 (Platygrapha chlorochroa Kremp.) Borneo.
195. S. minima (Kremp.) 123, 124 p. 39 (Platygrapha min. Kremp.) Borneo.
196. S. mirifica (Kremp.) 123, 124 p. 41 Tafel I Fig. 12 (Platygrapha mirifica Kremp.) Borneo.
197. S. planissima (Kremp.) 124 p. 42 (Platygrapha plan. Kremp.) Borneo.
198. S. squamigera (Kremp.) 124 p. 41 Tafel I Fig. 13 (Platygrapha squamigera Kremp.) Borneo.
199. S. striguloides (Nyl.) 123, 124 p. 41 (Platygrapha strig. Nyl.) Borneo.

Fam. **Thelotremaceae.**

200. Ocellularia (Ascidium) albogilva (Kremp.) 124 p. 21 (Asc. alb. Kremp.) Borneo.
201. O. (Ascidium) carnosula (Kremp.) 124 p. 22 (Asc. carn. Kremp.) Borneo.
202. O. (Ascidium) confluens Kremp. var. polyporum Kremp. 124 p. 23 (Asc.) Borneo.
203. O. (Ascidium) crocea Kremp. 124 p. 25 Tafel I Fig. 24 (Asc. cr. Kremp) Borneo.
204. O. defossa Müll. Arg. 145 p. 13 Timor; 147 p. 138 Timor; 150 p 13 Timor.
205. O. (Ascidium) dignitosa (Kremp.) 124 p. 24 Tafel I Fig 21 a-c (Asc. dign. Kremp.) Borneo.
206. O. (Ascidium) granulifera (Kremp.) 124 p. 21 (Asc. gran. Kremp.) Borneo.
207. O. (Ascidium) isidiophorum (Kremp) 124 p. 24 (Asc. isid. Kremp.) Borneo.
208. O. (Myriotrema) olivacea (Fée) 110 p. 485 Java.
208a. O. papuana Müll. Arg. 145 p. 12—13 Deutsch Neu-Guinea; 147p. 138 N. G. 150 p. 12. N. G.

209. O. (Ascidium) phaeotropa (Kremp.) 124 p. 22 (Asc. phaeotr. Kremp.) Borneo.
210. O. (Ascidium) pomiformis (Kremp.) 124 p. 26 Tafel I Fig. 22 a-c (Asc. pomif. Kremp.) Borneo.
211. O. (Ascidium) triglyphica (Kremp.) 124 p. 22 (Asc. trigl. Kremp.) Borneo.
212. Thelotrema atratum Fée 100 p. 484 Java.
213. Th. cavatum Ach. var. submutatum Nyl. 124 p. 20 Borneo.
214. Th. cinereo-virens Kremp. 124 p. 18 Borneo.
215. Th. collativum Kremp. 124 p. 20 Borneo.
216. Th. conformale Kremp. 124 p. 19 Borneo.
217. Th. ? dislacerata Kremp. 124 p. 17 Borneo.
218. Th. eurychades Kremp. 124 p. 17 Borneo.
219. Th. foraminulosum Kremp. 124 p. 20 Borneo.
220. Th. glaucophaenum Kremp. 124 p. 19 Borneo.
221. Th. granatum Kremp. 124 p. 18 Borneo.
222. Th. microporum Mont. 110 p. 484 Java.
223. Th. pachystomum Müll. 103 p. 12 Waigeoe.
224. Th. parvulum Kremp. 124 p. 20 Borneo.
225. Th. persimile Kremp. 124 p. 19 Borneo.
226. Th. porinoides Mont. et v.d. Bosch 110 p. 484 Java
227. Th. (Gyrostomum) scyphuliferum (Ach.) 154 p. 132 Java.
228. Leptotrema Zollingeri Mont. et v. d. Bosch 110 p. 483 Java; 273 (Thelotrema Zoll. Mont.) Java.

Fam. **Coenogoniaceae**

229. Coenogonium confervoides Nyl. 104 p. 182 Borneo; 124 p. 26 Borneo; 145 p. 15 Ambon.
230. C. Leprieurii (Mont). Nyl. 124 p. 26 Borneo; 215 p. 29 Neu-Guinea.
231. C. Linkii Ehrenb. 110 p. 493 Java; 122 p. 862 Ambon.
232. C. tenuissimum Kremp. 123,124 p. 26 Borneo.

Fam. **Lecideaceae.**

233 Lecidea atro-alba Ach. 110 p. 463 Java.
234. L. (Biatora) aurata (Mont. et v. d. Bosch) 110 p. 458 (Biatora aur. Mont. et v. d. Bosch) Java.
235. L. cinnamomea Kremp. 123,124 p. 27 Tafel I Fig. 2 Borneo.
236. L. comparanda Nyl. 154 p. 132 Java.
237. L. coniochlora Mont. et v. d. Bosch 110 p. 463 Java.
238. L. (Biatora) crenulata (Hepp) 110 p. 459 (Biatora cren. (Hepp) Java; 273 (Baeomyces crenulatus Hepp) Java.
239. L. disciformis (Fr.) Nyl. 154 p. 132 Java.
240. L. (Buellia) exalbida Kremp. 124 p. 28 Borneo.
241. L. galbinea Kremp. 123,124 p. 27 Borneo.
242. L. geographica Schaer. 110 p. 463 Java.

243. L. (Psora) javanica Schaer. 110 p. 460 (Biatora javanica (Schaer.) Mont. et v. d. Bosch) Java; 144 Java; 151 p 280 (Psora breviuscula (Nyl.) Müll. var. javanica (Schaer.)) Java; 273 Java.
244. L. (Biatora) Junghuhnii (Mont. et v. d. Bosch) 110 p. 459 (Biatora Jungh. Mont. et v. d. Bosch) Java.
244a. L. (Biatora) Kurziana Müll. Arg. 152 p. 127 Java.
245. L.? laceratula Kremp. 124 p. 28 Borneo.
246. L. (Biatora luteola (Fr.) var. vernalis 110 p. 459 (Biatora) Java.
247. L. marginiflexa var. atrorubicans Nyl. 154 p. 132 Java.
248. L. (Biatora) Bélangeri Mont. et v.d. Boach) 110 p. 461 (Biat. Bel. Mont et v. d Bosch) Java; 273 (L. microspora Hepp) Java.
249. L. (Biatora) microcarpa (Mont. et v. d. Bosch) 110 p. 461 (Biat. micr. Mont. et v. d. Bosch) Java.
250. L. morula Kremp. 124 p. 29 Tafel I Fig. 3 Borneo.
251. L. (Bilimbia) pallidula Kremp. 123, 124 p. 27 Borneo.
252. L. palmicola Tuckerm. 123, 124, p. 26 Borneo.
253. L. parasema Fr. 110 p. 463 Java.
254. L. parvifolia Pers. var. fibrillifera Nyl. 124 p. 29 Borneo.
255. L. prasinorubella Nyl. 154 p. 132 Java.
256. L. (Biatora) russula (Ach.) 110 p. 459 (Biat. russ. (Ach.) Mont.) Java.
257. L. Saxicila 272 p. 252 Java.
258. L. subfuscata Nyl. 154 p. 132 Java.
259. L. (Biatora) triseptata Hepp. 110 p. 462 (Biat. tris. (Hepp) Mont. et v. d. Bosch) Java; 124 p. 29 Borneo; 154 p. 132 Java; 273 Java.
260. L. (Biatora) versicolor Fée 110 p. 460 (Biat. vers. (Fée) Mont. et v. d. Bosch) Java.
261. L. (Biatora) vestita Mont. 110 p. 460 (Biat. vest. Mont) Java.
262. Megalospora taitense (Mont.) 110 p. 462 (Heterothecium taitense Mont.) Java.
263. M. tricolor (Mont.) 110 p. 462 (Heterothecium tricolor Mont.) Java.
263a. Lopadium epiphyllum Mont. B.

Fam. **Cladoniaceae.**

264. Baeomyces fungoides Ach. 110 p. 458 Java; 144 Java; 154 p. 129 Java.
265. Cladonia adspersa Mont. et v.d. Bosch 110 p. 456 Java.
266. C. botryocephala Hepp 110 p. 457 Java; 273 Java.
267. C. coccifera Fl. 98 Java; 110 p. 457 (C. cornucopioides Fr.) Java.
268. C. coccifera Fl. var. stemmatina Ach. 97 p. 173 Java.
269. C. decorticata Fl. 110 p. 456 Java
270. C. degenerans Fr. c. pityrea (Fr.) 97 p. 173 (C. pityrea Fr.) Java; 110 p. 455 Java.

271. C. degenerans Fr. c. pityrea (Fr.) form. carneo-pallescens Nyl. 154 p. 129 Java.
272. C. degenerans Fr. f. trachyna (Ach.) 154 p. 129 Java.
273. C. fimbriata Fr. ochrochlora Schaer. 110 p. 455 Java.
274. C. fimbriata Fr. c. ochrochlora Floerke 110 p. 455 Java. C. Floerkeana Fries 216 p. 213 Engl. Nord-Borneo.
275. C. furcata Sommerf. var. subulata 110 p. 456 Java.
276. C. isidioclada Mont. et v.d. Bosch 110 p. 457 Java.
277. C. Junghuhniana Mont. et v.d. Bosch 110 p. 456 Java.
278. C. macilenta Hoffmann 110 p. 458 Java; 144 Java; 154 p. 130 Java; 271 p. 396 Java; 272 p. 252 Java; 273 Java.
279. C. polyphylla Mont. et v.d. Bosch 110 p. 457 Java.
280. C. pyxidata Fr. 110 p. 455 Java.
281. C pyxidata Fr. var. neglecta Mass. 98 Java;
282. C. pyxidata Fr. form. staphylea Ach. 154 p. 129 Java.
283. C. squamosa Hoffm. 154 p. 130 Java; 273 Java.
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285. C. turgida Hoffm. javanica Mont. et v.d. Bosch 110 p. 455 Java.
285a. C. vulcanica Zoll. 67a Java.
286. Stereocaulon botryosum Ach. 110 454 Java.
287. S. condensatum Laur. 110 p. 455 Java.
288. S. graminosum Schaer. 110 p. 454 Java; 144 Java; 273. Java.
289. S. Massartianum Hue 97 p. 173—174 Java.
290. S. (Leprocaulon) nanum Ach. 97 p. 174 Java; 154 p. 130 Java.
291. S. nesaeum Nyl. 97 p. 173 Java; 154 p. 130 Java.
292. S. ramulosum Ach. 110 p. 451 Java; 144 Java; 273 Java.
293. S. turgescens Nyl. 98 Java; 154 p. 130 Java.
293a. S. verruculigerum Hue 99 Java.
293b. Gyrophora perforata Pers. 84a p. 202—203 Rawak.

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294. Thelocarpon byssoideum Kremp. 124 p. 47 Borneo.
295. Th. luteo-virens Kremp. 124 p. 46—47 Borneo.

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296. Physma pulvinatum Hue 97 p. 171 Java.
297. Dichodium byrsinum (Ach.) Nyl. 110 p. 491 (Collema byrsinum Mont.) Java; 124 p. 9 (Coll. byrs. Ach.) Borneo; 144 (Coll. (Mallotium) plumbeum Schaer.) Java; 145 p. 6 (Physma byrs. Mass.) Ambon; 215 p. 29 Deutsch Neu-Guinea; 273 (Coll. Boryanum Pers.) Java. 84a p. 205 (Coll. Boryanum Pers.) Rawak.
298. D. byrsinum (Ach.) Nyl. var. hypomelarnum (Hue) Nyl. 97 p. 171 Coll. Boryanum Pers.) Rawak. (Physma byrs. var. hyp. Hue) Java.

299. Collema actinoptychum Nyl. 124 p. 9 Borneo.
300. C. (Synechoblastus) aggregatus (Nyl.) 103 p. 13 (Syn. aggre. Nyl.) Holl. Neu-Guinea.
301. C. luridum Mont. 110 p. 492 Java.
301a. C. moluccanum Pers. 84a p. 203—204 Rawak.
302. C. nigrescens Ach. 110 p. 492 Java; 144 Java; 273 Java.
302a. C. plicatum Pers. 84a p. 205 Rawak.
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303. L. Brebissoni Mont. 110 p. 493 Java.
304. L. Burgessii (Ach.) Mont. 110 p. 493 Java.
305. L. crispulum Kremp. 123, 124 p. 9 Tafel I Fig. 1 Borneo.
306. L. diaphanum (Mont.) Nyl. 104 p. 184 Sumatra; 110 p. 493. (L. Bullatum (Ach.) Mont.) Java; 124 p. 10 (L. phyllocarpum (Pers.) Nyl.) Borneo; 145 p. 6 (L. phyllocarpum Mont.) Timor; 273 (L. bullatum Mont.) Java.
307. L. diaphanum (Mont.) Nyl. var. coralloidea Mey. et Flot. 97 p. 172 (L. phyllocarpum var. coralloideum Müll.) Java.
308. L. fallax Müll. 97 p. 172 Java; 103 p. 14 Waigeoe.
309. L. fallax Müll. from. sublaeve Müll. 97 p. 172 Java.
310. L. foliare Kremp. 123, 124 p. 10 Borneo.
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313. L. tremelloides (Ach.) Fr. 103 p. 15 Engl. Neu-Guinea; 110 p. 493 Java; 124 p. 10 Borneo; 144 (Collema trem. Ach.) Java; 273 (L. trem. Mont.) Java.
314. L tremelloides (Ach.) Fr. var azureum (Ach.) Nyl. 110 p. 493 (L. azureum (Ach.) Mont.) Java; 144 (Collema azureum Ach.) Java; 215 p. 29 Deutsch Neu-Guinea.
315. L. tremelloides (Ach.) Fr, var. cyanescens Mont. 144 (Collema) Java; 273 Java.

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316. Parmeliella blepharophora Müll. Arg. 151 p. 278 Java.
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318. P. nigrocincta (Mont.) Nyl. 124 p. 12 Borneo.
319. P. pannosa (Sow) Del. 103 p. 11 Waigeoe; 124 p. 12 Borneo; 122 p. 862 Ambon; 145 p. 10 Ambon; 154 p. 13 Java; 215 p. 30 Deutsch Neu-Guinea
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C. aeruginosa Müll. var. subaurata Jatta 103 p. 11 Engl. Neu-Guinea.

320. C. aurantiaca (Hook. et Tayl.) Mont. et v. d. Bosch 110 p. 465 Java; 145 p. 10 Ambon; 154 p. 131 Java.
321. C. divergens Kremp. *α* latifolia *β* angustifolia 124 p. 14 Borneo.
322. C. epiphylla (Fée) Kremp. 103 p. 12 Engl. Neu-Guinea; 123, 124 p. 13 Borneo.
323. C. glaucina Kremp. 124 p. 14 Borneo.
324. C. incisa Pers. 110 p. 465 Java; 124 p. 15 Borneo.
325. C. molybdeae (Pers.) Nyl. 103 p. 11 Engl. Neu-Guinea; 110 p. 464 Java; 124 p. 13 Borneo; 154 p. 131 Java; 273 Java; 184a. p. 206 Molukken.
326. C. pellita (Ach.) 273 (Parmelia pellita Ach.) Java.
327. C. pellita (Ach.) Müll. var. palumbinea Nyl. 104 p. 180 Sumatra.
328. C. pellita (Ach.) Müll. var. isidiophylla Müll. 145 p. 10 Ambon.
329. C. pellita (Ach.) Mülll. var. smaragdina (Pers.) Müll. 110 p. 465 (C. smaragdina Pers.) Java; 144 (Parmelia membranacea Schaer.) Java; 145 p. 10 Ambon; 273 (C. smar. Pers.) Java.
329a. C. polyphylla Pers. 84a p. 206 Rawak.
329b. C. viridescens Pers. 84a p. 207 Rawak.

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331. L. (Lobarina) retigera (Bory) Nyl. form. isidiosa Hue 97 p. 182 Java.
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335. S. aurata Ach. 110 p. 434 Java.
336. S. (Stictina) Beccarrii Kremp. 124 p. 11 Borneo.
337. S. (Stictina) Boschiana (Mont.) Nyl. 97 p. 188 Java; 103 p. 7 Engl. Neu-Guinea; 110 p. 436 Java.
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339. S. carpolomoides Nyl. 97 p. 186—187 Java.
340. S. (Stictina) filicina Ach. 97 p. 191 Java; 110 p. 439 Java; 144 Java; 273 Java.
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342. S. (Stictina) filicina Ach. marginifera Mont. 110 p. 440 Java.
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344. S. cometia Ach. 110 p. 435 Java.
345. S. crocata Ach. 110 p. 434 Java.

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347. S. dissimulata Nyl. 154 p. 130 Java.
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349. S. (Stictina) fimbriata Schaer. 97 p. 192—193 Java; 144 Java; 273 Java.
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368. N. resupinata Ach. 110 p. 433 Java.
369. N. resupinata Ach. form. helvetica Arn. 97 p. 180 Java.
370. Peltigera canina Willd. 45 p. 266 Holl. Neu-Guinea.
371. P. melanocoma (Nyl.) Mont. et v.d. Bosch 97 p. 180 (P. polydactyla var. melanocoma Nyl.) Java; 110 p. 432 Java.
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381. P. sulphurea β rupicola Schaer. 110 p. 482 Java.
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384. Lecanora dissoluta Nyl. 154 p. 131 Java.
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Bemerkungen und Verbesserungen.

Die Nummern 63 und 64 der Literaturliste sind später weggefallen, weil sie nicht über das Gebiet handelten. Durch einen Irrtum ist Abhandlung 150 zwei mal vertreten (schon als 145).

S. 59 No. 1239 H. (Radulum) herpotodon Lév., muss sein: herpetodon.

S. 75 No. 1490 füge hinzu: 204 p. 128 (Fungus arboreus II ruber) Ambon.

S. 84 No. 1612 A. ephemerus Bull., muss sein: C. ephemerus (Bull.).

UEBER EINIGE VON APHIDEN AN STYRAX-ARTEN GEBILDETE GALLEN

von

W. M. DOCTERS VAN LEEUWEN,
Buitenzorg.

Mit Tafel 1.

Einleitung.

Schon vor mehr als 30 Jahren sind die von einer Aphide: Astegopteryx styracophila Karsten an Styrax benzoin gebildeten Gallen von TSCHIRCH auf der Insel Java gefunden und beschrieben worden. Die Gallengebilde ziehen durch ihre bizarre Form sehr die Aufmerksamkeit auf sich und auch morphologisch sind sie ein Studium wert. TSCHIRCH beschrieb von dieser Pflanze zwei Gallenarten, nämlich eine Blütengalle, welche aus vielen Einzelgallen zusammengestellt ist und eine Achsenknospengalle, welche solitär ist.

Beide Gallen kommen auf den Bäumen im botanischen Garten zu Buitenzorg vor, dabei ist die erste sehr häufig, die zweite selten. Sie werden von denselben Aphiden gebildet.

SASAKI beschrieb eine der Blütengalle von Styrax benzoin ähnliche Galle auf Styrax japonicus. Es ist aber eine Endknospengalle. Die Gebilde sind in Japan sehr häufig und werden von der Bevölkerung Nekoashi (d. h. Katzfusz) genannt. Diese Gallen werden von einer anderen Astegopteryx-Art gebildet, nähmlich von A. nekoashi Sasaki.

MATSUMURA beschrieb noch eine dritte Astegopteryx-Art nämlich A. styraci, welche auf St. obassia Gallen bildet.

1917 gab J. J. SMITH, eine Beschreibung einer neuen Styrax-Art: St. sumatranus, welche in Sumatra ziemlich häufig angepflanzt zu sein scheint, aber da die Unterschiede zwischen dieser neuen Art und St. benzoin sehr gering sind, bis vor Kürze noch nicht beachtet worden war. An dem Material von dieser neuen Styrax-Art waren aber ebenfalls von Aphiden gebildete Gallen, welche wie die Gallen an St. benzoin gebüschelt an einer Stelle der Zweige befestigt waren. Dr. SMITH sah sie für Blütengallen an und wies schon darauf hin, dasz diese Galle aus einem langen spiralenförmig gedrehten Rohre bestand. Wie wir weiter sehen werden, ist diese Galle aber keine Blütengalle.

Dieses Material wurde behufs einer näheren Untersuchung von dem Forstbeamten Herrn V. A. THEUNISSEN wieder für mich gesammelt, und dabei entdeckte er noch einige Gallen von anderer Form. Auszerdem sammelte Herr J. A. LÖRZING, der eifrige Hortulanus der Abteilung des Buitenzorger Gartens im Sumatra in Sibolangit in der Nähe von Medan auf Styrax-Bäumen ganz merkwürdig gebaute Gallen, welche unglaublich

grosz waren; und dazu mehrere Arten von Aphiden-Gallen an diesen Pflanzen. Dieses Material ist nun in meinem Besitze; leider sind Jugendstadien nur spärlich vorhanden. Von einer Galle habe ich selbst auch die Entwicklung verfolgen können, die Beschreibung davon kann man unter No. 6 finden.

Auszerdem kann ich eine Styrax-Art von Sibolangit nicht unter einer der bekannten Arten unterbringen. Die Blätter sind auch oberseits auf den Nerven stark behaart und beschuppt und fallen auch durch ihre Farbe und die geringere Grösze der Blätter direct auf.

Alle diese Gallen werden von Aphiden gebildet, und von den lebenden Exemplaren einiger Typen konnte ich Läuse sammeln. Herr VAN DER GOOT war so freundlich, mir mit zu teilen, dasz es sich zwar um Astegopteryx-Arten handelte, dasz aber nicht mit Sicherkeit bestimmt werden konnte, ob hier neue Arten vorlagen oder nicht, da geflügelte Exemplare nicht in diesem Material vorkamen. Ob die verschiedenen Gallen also von einer oder von mehreren Astegopteryx-Arten gebildet werden, musz ich dahingestellt lassen, obschon es zu erwarten ist, dasz mehrere Arten in den verschiedenen Gallen aufgefunden werden sollen.

Auszerdem befand sich im Herbarium Generale des hiesigen Gartens noch Material aus verschiedenen anderen Gegenden und an anderen Styrax-Arten, welche, so weit mir bekannt, noch nicht beschrieben worden sind.

Alles in Allem kenne ich jetzt 18 verschiedene Gallenformen, welche von Aphiden an Styrax-Arten gebildet werden. Ich werde hier die Beschreibung der Gallen zusammen mit ihren Abbildungen geben, der Vollständigkeit halber füge ich die Beschreibung der schon bekannten Gallen noch hinzu.

Einzelbeschreibungen der Gallen.

I. Styrax benzoin DRYAND.

1. *Blumengalle.*

Diese Galle wurde von TSCHIRCH [1]) beschrieben. Er fand die Missbildungen im botanischen Garten zu Buitenzorg und in einer Anpflanzung auf den östlichen Abhängen der Vulkan Salak, welche nicht mehr besteht. Ich kenne sie jetzt von vielen Stellen und überall, wo dieser Baum vorkommt, scheint auch die Blumengalle zu finden zu sein.

Wir können auf die Abhandlung von TSCHIRCH verweisen. Darin findet man eine Beschreibung des Gallentieres, Astegopteryx styracophila, von Dr. KARSCH beigegeben.

Die Gallen sind auf den beiden alten Bäumen in unsrem Garten sehr häufig, und im Anfang von 1920 hatte ich eine ganze Menge von ungeflügelten und geflügelten Läusen zur Verfügung. Diese Läuse wurden aus ihrer Wohnung herausgeholt und dann auf junge Topfpflanzen dieses Baumes übergebracht. Die Bäumchen wurden unter Glasglocken weiter gezüchtet; welche in einer kühlen

[1]) A. TSCHIRCH: Ueber durch Astegopteryx, eine neue Aphiden-Gattung, erzeugte Zoocecidien auf Styrax benzoin Dryand.
Ber. d. Deutschen Bot. Ges. 1890, Band VII, S. 48—53. Tafel IV.

beschatteten Veranda aufgestellt waren. Die Pflanzen wuchsen ganz gut und die Tiere lebten noch ungefähr zwei Monate an der Unterseite der jungen Blätter.

Die jungen Blätter entfalteten sich nicht normal, wurden bootförmig nach unten gebogen, aber an den Pflanzen entwickelten sich kleine Knospengallen, welche von derselben Astegopteryx-Art geformt werden. (Siehe No. 2).

Dieselbe Galle wurde auch in Kürze durch KÜSTER [1]) besprochen, welcher angibt dasz man sie mit einer gefüllten Blüte vergleichen kann.

Auch in der wichtigen Arbeit von KOORDERS und VALETON [2]) Über die Baumarten von Java wird die Galle erwähnt.

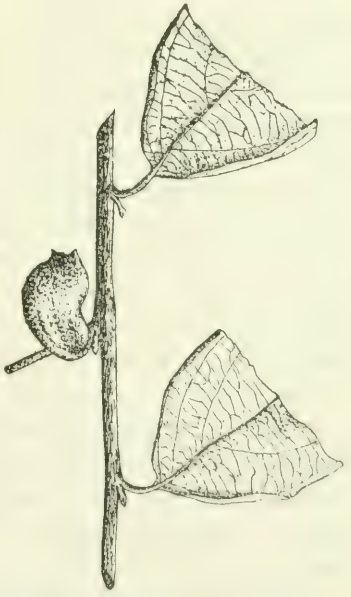
Fundstelle: *Java.* Abt. Soekaboemi, Palaboean Ratoe. S. H. KOORDERS coll. 22. Juni 1890, No. 8048 β und 27. April 1893, No. 12263 β; Trètes, Walirang Gebirge, pl. 800 M, E. BREMECAMP coll. Herb. D. v. L. No. 2951, Juli 1918; botanischer Garten, Buitenzorg, zirka 250 M, 6/IX, 1918, Herb. D. v L. No. 2929.

Sumatra. Tapanoeli, Gating, A. V. THEUNISSEN coll. 4. Juli 1915 No. 3, und bei Gonting, Juli 1916; und zwischen Sibolga und Taratoeng, 23. November 1918 No. 1.

Perak. pl. 150 M. Juni 1886. Dr. KING'S Sammler, Ulu Babong coll. No. 10305.

2. *Achsenknospengalle.*

Von TSCHIRCH [3]) wurde an den selben Pflanzen eine ganz andere Gallenbildung gefunden, welche, wie er schon angibt, viel weniger vorkommt als die Blumengalle. Doch kann man sie regelmässig in den Bäumen finden. Eine echte Knospengalle ist es freilich nicht. Meistens ist sie an der Seite der Achsenknospe entwickelt und bleibt diese ganz normal. Sie macht mehr den Eindruck, an der Rinde in nächster Nähe der Achsenknospe entstanden zu sein. Diese Galle ist in Figur 1 abgebildet. Sie ist meistens etwas gekrümmt. Übrigens verweise ich auf die Beschreibung, welche TSCHIRCH von dieser Galle gibt.



Figur 1. Die zweite Galle auf Styrax benzoin Dr. × $^2/_3$

Fundstelle: *Java.* Abt. Soekaboemi, Palaboean Ratoe, S. H. KOORDERS coll. 22. Juni 1890. No. 8048 β; botanischer Garten zu Buitenzorg. 6 December 1918, Herb. D. v. L. No. 3071, *Sumatra.* Sibolangit bei Medan zirka 400 M. im Urwald. 13. Juli 1921. Herb. D. v. L. No. 5537.

[1]) E. KÜSTER, Die Gallen der Pflanzen, Leipzig 1911. S. 102.

[2]) S. H. KOORDERS en TH. VALETON, Bijdrage No. 7 tot de kennis der Boomsoorten op Java, Mededeelingen uit 's Lands Plantentuin No. XLII, Batavia 1900. S. 133.

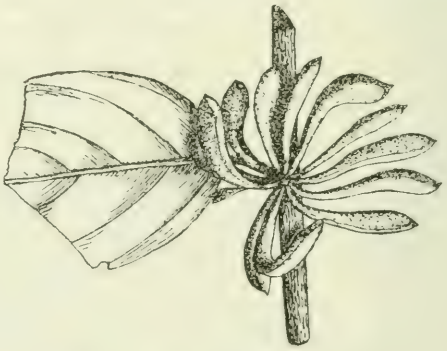
[3]) TSCHIRCH, loc. cit. S. 50, Tafel IV, Figur 15.

3. *Rindengalle.*

Diese Gallen entstehen an beliebigen Stellen der Zweige. Sitzen sie in der Nähe der Spitze, dann stirbt diese ab oder bleibt klein, sonst entwickeln die Zweige sich normal. Die Gallen bestehen aus einigen bis zu zehn zusammengedrückten Säcken, welche gelbbraun sind, und die Oberfläche derselben ist ausserdem rauh, überdeckt mit kurzen Pusteln wie die folgende Galle (No. 4). Sie unterscheiden sich von derselben aber deutlich dadurch, dasz die Öffnung nicht vom Fusz bis zur Spitze geht, sondern nur an dem breiten oberen Ende gelegen ist. Diese Öffnung ist eigenartig ausgebildet. Es ist keine einfache Spalte, sondern diese ist in regelmässigen Abständen mit kleinen kreisrunden Erweiterungen versehen, sodasz die Oberseite der Galle eine lange Einsenkung besitzt, worin wie mit einer Nadel gestochene Öffnungen vorkommen. Siehe Fig. 2o. Die Gallen sind taschenförmig und zusammengedrückt, die Rinde ist geöffnet und die Säcke kommen aus der so gebildeten Öffnung zum Vorschein.

Figur 2. Rindengalle an Styrax benzoin Dryand. × 2/3.

Eine ähnliche Galle fand ich auch an dem Blütenstande von den Bäumen in dem botanischen Garten. Sie waren etwas zarter und ähnelten den Blütengallen, unterscheiden sich aber leicht von denselben durch verschiedene Merkmale. Erstens sind sie gelbbraun, während die Blumengallen graugrün sind, zweitens sind die Säcke ungestielt, sie werden allmählig dünner, oft sind sie sickelförmig nach innen gebogen. Ausserdem liegt die Öffnung an der Spitze und befinden sich keine drahtförmigen Vorsätze in den Gallen. Im Innern sind sie sehr dunkel und mit einigen kleinen kurzen Fortsätzen versehen.



Figur 3. Rindengalle an Styrax benzoin Dryand. × 2/3.

Von diesen unterscheidet sich wieder eine Galle aus Palembang durch zartere Struktur und schmäleren Bau, ausserdem sind sie mehr stielförmig an der Basis verschmälert. Im Innern sind diese dunkelpurpurn. Siehe Figur 3.

Fundstelle: *Java.* Botan. Garten Buitenzorg, 250 M. 6/XI. 1918, Herb. D. v. L. No. 2929. Buitenzorg, Tjampea, pl. 250 M. S. H. KOORDERS coll. 2. Juli 1898, No. 30395 β. Abt. Soekaboemi, Palaboean Ratoe, S. H. KOORDERS

coll. 22. Juni 1890, No. 8048 *β*. Abt. Soekaboemi, Palaboean Ratoe, S. H. KOORDERS coll. 27. April 1893. No. 12263 *β*.

Sumatra. W. Küste, Tapanoeli, Godang, 29. November 1918, A. V. THEUNISSEN coll. No. 1; idem Habinsaran bei Gonting, Juli 1916, A. V. THEUNISSEN coll. idem Palembang. Abteilung Rawas, pl. 100 M; 26 März 1916, W. GRASHOFF coll., No. 1015; Tapanoeli Gating, A. V. THEUNISSEN coll. No. 3, 4. Juli 1915.

Sibolangit bei Medan, zirka 400 M. im Urwald. 13. Juli 1921. Herb. D. v. L. N. 5535. Bajoengklintjir, bei Palembang, September 1920. A. THORENAAR coll. No. 42 T. 1 P. 55.

Perak. pl. 150 M. Juli 1883. Dr. KING'S Sammler Juru coll. No. 7840. (dieses Material ist ganz zerstückelt).

4. *Rindengalle*.

Eine sehr merkwürdige Galle fanden wir auf Styrax-Material im Herbarium Generale des botanischen Gartens. Nur einige Exemplare lagen leider vor, die einander aber ganz ähnlich sind. Sie lassen sich leicht von allen anderen Gallen dieser Art unterscheiden durch ihre gelbbraune und sehr unebene Oberfläche. Die Gallen sind aus 10—12 einzelnen Gallen zusammengesetzt, welche in einer Ebene um eine zentrale kreisrunde Stelle (Figur 4) angeheftet sind, wie das bei der vorigen Galle auch vorkommen kann. Sie können an beliebigen Stellen von jungen dünnen Stengeln entstehen; der Stengel unterhalb der Galle wird dabei erheblich verdickt; der oberhalb der Galle sitzende Stengelteil ist aber meistens dünn und verkümmert und trägt keine Blätter mehr. Jede einzelne Galle ist sackförmig und zusammengedrückt und auf der schmalen Seite befindet sich eine Spalte, welche vom Fusz bis zur Spitze der entgegengesetzten Seite läuft. Siehe die beigefügte Figur 4. Im Innern sind die Gallen dunkelbraun und mit einigen kurzen stachelartigen Fortsätzen versehen.

Figur 4. Rindengalle an Styrax benzoin Dryand. × 2/3.

Fundstelle: *Sumatra's Westküste*, bei Gonting Habinsaran Juli 1916. A. V. THEUNISSEN coll.; Tapanoeli, Gating, A. V. THEUNISSEN coll. No. 3; 4. Juli 1915.

5. *Rindengalle.*

An beliebigen Stellen, aber meistens in der Nähe der Blattachseln, befinden sich Gallen, welche aus langen, mehr oder weniger zylindrischen Röhren zusammengesetzt sind. Diese Röhren sind ungefähr 12 cM. lang oder kürzer und der Länge nach gespalten. Sie sind ziemlich regelmässig um eine kreisrunde Stelle herumgestellt und ausserdem gekrümmt oder gebogen, wie das in der beigefügten Figur 5 leicht zu sehen ist. Die Oberfläche derselben ist mit Längsrissen versehen und dicht mit kurzen gelbbraunen Haaren überdeckt.

Figur 5. Rindengalle an Styrax benzoin Dryand. × $^2/_3$.

Fundstelle: *Sumatra's West-Küste.* Tapanoeli, Gating, 4. Juli 1915. A. V. THEUNISSEN coll. No. 3; idem Taroetoeng, 10. December 1918. A. V. THEUNISSEN coll. No. IV.

Perak. ± 150 M. Juli 1883, Dr. KING'S Sammler; Juru coll. No. 7840.

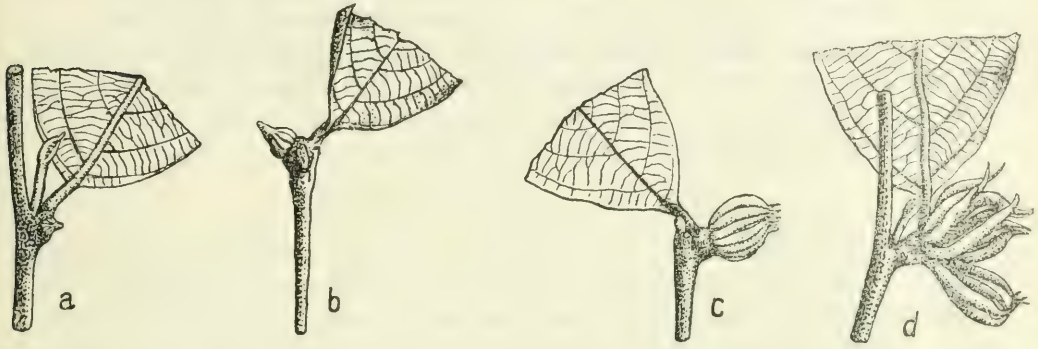
6. *Rindengalle.*

Auf meiner letzten Exkursion nach der Abteilung des botanischen Gartens in Sibolangit bei Medan (Sumatra) entdeckte ich noch eine neue Gallenart auf dieser Pflanze. Diese Gallen sind der an Styrax sumatranus unter N. 13 beschriebenen Rindengalle sehr ähnlich. Sie sind meistens an der Basis der Blattstiele entwickelt und bestehen aus 8—15 langen zylindrischen, oft etwas spiralig gedrehten Röhren, die wie die der vorigen Galle strahlenförmig um eine flache zentrale Stelle angeordnet sind. Die Gallenröhren sind 5—10 c.M. lang und etwa 2 mM. dick, die Öffnung ist eine Längspalte, welche von der Basis bis zur Spitze läuft.

Von dieser Galle fand ich auch die ersten Entwicklungsstadien.

Das Muttertier setzt sich am Grund eines Blattstieles fest und bleibt so ruhig sitzen. Allmählig wachsen dann kleine Fortsätze um das Tier herum, die es ganz einschliessen und sich nach oben wieder zusammenbiegen, sodasz die Mutterlaus ganz von den Wucherungen umschlossen

wird. Die Gallen sind dann sehr klein und schwer zu finden. Zu gleicher Zeit wird der Blattstiel verdickt, siehe Figur 6 bei a. Allmählig werden



Figur 6. Junge stadien der Aphiden-Galle (N. 6) an Styrax benzoin Dryand. natürl. Grösse.

die Fortsätze grösser, siehe bei b, und nach einiger Zeit biegen sie sich mit ihren Spitzen etwas aus einander, siehe bei c. Die Röhren werden geräumiger und endlich wachsen sie aus einander, wie das bei d zu sehen ist. Die eigentlichen Gallenröhren breiten sich endlich flach aus, sodass die ganze Galle schliesslich radförmig wird.

Fundstelle: *Sumatra,* Sibolangit bei Medan, zirka 400 M. im Urwald, 13. Juli 1921. Herb. D. v. L. N. 5536.

II. **Styrax japonicus** SIEB. et ZUCK.

7. Von Professor C. SASAKI [1]) erhielt ich einiges Material dieser in Japan so häufigen Galle, wofür ich ihm meinen herzlichen Dank ausspreche.

Diese Galle ist aber schon von ihm selbst beschrieben worden, sodasz ich auf seine Verhandlung hinweisen möchte.

Im Groszen und Ganzen ähnelt diese Galle der an Styrax serrulatum (Siehe No. 16) von mir in diesem Beitrag beschriebenen. Sie wird verursacht von Astegopteryx nekoashi SASAKI.

Auch die Biologie des Tieres und die Entwicklung der Galle wurde vom genannten Autor beschrieben.

Fundstelle: *Japan,* Tokyo, C. SASAKI coll.

III. **Styrax obassia** SIEB. und ZUCK.

8. Professor MATSUMURA [2]) hat eine Astegopteryx-Art beschrieben, nämlich A. styraci, welche Gallen an obgenannten Styrax-Art bildet.

[1]) C. SASAKI. A New Aphid-Gall on Styrax japonicus. Extrait du 1er Congrès international d'Entomologie 1910, Bruxelles 1911. S. 449. (Zahlreiche Abbildungen von Gallen und Aphiden findet man auf Tafel XXV und XXVI).

[2]) SH. MATSUMURA, Synopsis of the Pemphigidae of Japan. S. 53, Tafel XII Figur I. A collection of Essays for Mr. Yasushi Nawa. Gifu, Japan, October 1917.

Nur eine kurze Beschreibung der Galle ist beigefügt und eine Abbildung derselben. Hieraus ist es ersichtlich, dasz es sich hier wahrscheinlich um eine Endknospengalle handelt. Es entstehen grosse unregelmässige hohle Gebilde, welche gelb-grün und etwas zusammengedrückt sind. Auf der Ausserseite sitzen unregelmässige Verzweigungen mit tubenförmigen Auswüchsen. An der Spitze dieser Auswüchse befinden sich die Öffnungen. Eine grosse Galle hatte einen Durchmesser von zirka 8 c.M.

Fundstelle: *Japan* (Hokkaido).

IV. Styrax serrulatum ROXB.

9. *Blumengalle.* Im Herbarium des hiesigen botanischen Gartens fand ich Material von obengenannter Pflanze aus Assam gesammelt von J. KURZ. Es bestand aus einigen Zweigen mit Blättern und Blütenstände. Es waren daran keine Blumen mehr vorhanden; wohl aber zahlreiche Gallen. Leider war das Material vollkommen auf dem Karton aufgeklebt worden, und stark gepresst, sodasz ich es nicht mehr genau untersuchen konnte, und verschiedenes unaufgeklärt bleiben muss. Die Gallen schliessen die Verzweigungen der Blütenstände ab und sind fast sicher aus Blumen hervorgegangen. Sie sind lang gestielt, und ungefähr 1 c.M. von der Basis entfernt sitzen einige kürzere oder längere, freie oder zu einem Trichter mit einander verwachsene Blättchen, welche allem Anschein nach Reste des Kelches sind. Es können auch stark entwickelte Vorblätter sein. Diese bilden eine Art Napf und aus dieser ragt ein dicker Stiel heraus, welcher allmählig in ein Büschel von kleinen Säcken übergeht, wie wir solche bei den anderen Gallen auch schon begegnet haben. Nur sind sie viel kleiner, ungefähr 6—8 mM lang und pl. 4 mM breit. Sie sind stark braun behaart. Diese Säcke (jede Galle ist aus ungefähr 15 solchen zusammengesetzt) sind nach aussen gerichtet und an der Stelle, wo sie sich vereinigen, findet man oft kleine drahtdünne Blätter, wie man solche auch an den Blütenstandgallen von St. benzoin (Siehe No. 1) finden kann. So weit ich sehen konnte, sind die Einzelgallen ganz geschlossen; vielleicht

Figur 7. Blumengalle an Styrax serrulatum Roxb. × 2/3.

tragen sie an dem Gipfel eine kleine Öffnung. Die Gallen machen den Eindruck einer hübschen Blume. Siehe Figur 7. In dem alten Material waren die Aphidenreste noch zu erkennen.

Diese Galle wird schon erwähnt von KOORDERS und VALETON [1]) in ihrer Arbeit über die Baumarten von Java. Wahrscheinlich haben sie dasselbe Material gesehen, das im Herbarium Generale des Buitenzorgischen botanischen Gartens bewahrt wird.

Fundstelle: Assam Herb. Sulp. Kurz, No. 289, Kasi Hills ± 1000 M, Juni 1877.

Assam. Colonel JENKENS coll. ohne No. und ohne Datum.

10. *Endknospengalle.*

An Material von dieser Pflanze, das sich im Herbarium des botanischen Gartens befand, entdeckte ich einige Gallen, welche alle an der Spitze von kurzen Zweigen entwickelt waren. In der Hauptsache ähnelt diese Galle der an Styrax japonicus Sieb. et Zuck. von Astegopteryx nekoashi Sasaki gebildeten Missbildungen, welche von Sasaki von ihren Anfang an beschrieben worden sind. (Siehe Figur 8a). Auch bei Styrax serrulatum sind es Rosetten von schlauchartigen oder bauchig aufgetriebenen Säcken, die dicht gedrängt bei einander an dem Gipfel eines Stengels stehen und das Wachstum derselben abschliessen. Es sind auch die Blätter modifiziert: Während normale Blätter an dem Gallenstiel noch entwickelt sind, sind sie klein geblieben. (Figur 8b). Von den Gallen an Styrax japonicus unterscheiden sie sich durch ihre Grösse, sie sind schlanker und nicht so lang. Ein Exemplar unterscheidet sich von den anderen dadurch, dasz die Säcke gekrümmt sind. (Siehe Figur 8c).

Figur 8. Endknospengalle an Styrax serrulatum Roxb. × $^2/_3$

Fundstelle: *China.* Tsingtau. 1901. Ex. Museo Berolinensi No. 4422, ZIMMERMANN coll.

11. *Rindengalle.*

Im Herbarium Generale des hiesigen Gartens befindet sich ein starker Zweig dieser Styrax-Species mit zwei grossen Gallen.

Diese sitzen am Ende von kurzen aber starken Stielen, stimmen übrigens ganz mit den Rindengallen an Styrax benzoin überein, welche unten No. 5 beschrieben worden sind. Nur sind alle Teile viel stärker. Die Säcke

[1]) S. H. KOORDERS en TH. VALETON, Bijdrage 7 tot de Kennis der Boomsoorten op Java. Mededeelingen van 's Lands Plantentuin No. XLII, Batavia 1900 S. 133.

sind ungefähr 5 mM. dick und 6—9 cM. lang, sichelförmig gekrümmt und auch um eine kreisrunde Stelle herum angewachsen. Ausserdem ist ihre Oberfläche ganz dicht braun behaart.

Fundstelle: Assam, Magarata. Dr. PRAIN'S Sammler Juni 1898. (Ohne no).

V. Styrax sumatranus J. J. S.

12. *Rindengalle.*

Diese Galle ist eine der merkwürdigsten, welche ich gesehen habe. Sie sind schon in Kürze von Dr. J. J. SMITH [1]) besprochen worden, welcher die Styrax-Art, woran diese Galle vorkommt, eine neue species: St. sumatranus, beschrieben hat. Er nennt die Galle aber eine Blütengalle und vergleicht sie dann mit den Blumengallen an Styrax benzoin. Eine Blumengalle liegt aber in Wirklichkeit nicht vor. Es ist eine Rindengalle, welche freilich wohl an den Blütenständen, aber auch an anderen Stengeln entstehen kann, wie das in der Figur 9 zu sehen ist. Am meisten findet man sie in der Nähe einer Achselknospe und gewöhnlich unterhalb des Blattfusses. Sie bestehen aus radiär um eine kreisrunde Stelle stehenden langen Tuben, welche aber meistens nach einer Seite gewachsen sind. Sie können aber auch nach verschiedenen Seiten ausstrahlen. Das merkwürdige ist aber, dasz alle Tuben über ihre ganze Länge spiralenförmig gedreht sind, sodasz eine Art Schraube entsteht. Siehe Figur 9 und 10. Die Aussenseite der Schraube ist dann zu gleicher Zeit die Stelle, wo die Gallenöffnung, welche von der Basis bis zur Spitze verläuft, liegt. Die Galle scheint sehr häufig zu sein.

Figur 9. Rindengalle (N. 11.) an Styrax sumatranus J. J. S. × 2/3

[1]) J. J. SMITH. Een nieuwe soort van het geslacht Styrax L. Tectona. Deel X, 1917, S. 204—206.

Man findet kleinere, welche aus ungefähr 10 Einzelgallen bestehen, aber auch solche, welche aus beinahe zwanzig, zirka 20 c.M. langen Tuben bestehen, welche ganz dichte Büschel bilden.

Erst dachte ich, dasz sich die Gallen beim Trocknen spiralenförmig gedreht hatten, aber von Herrn THEUNISSEN erhielt ich auch Alcoholmaterial, dasz vollkommen so aussieht wie die getrockneten Specima.

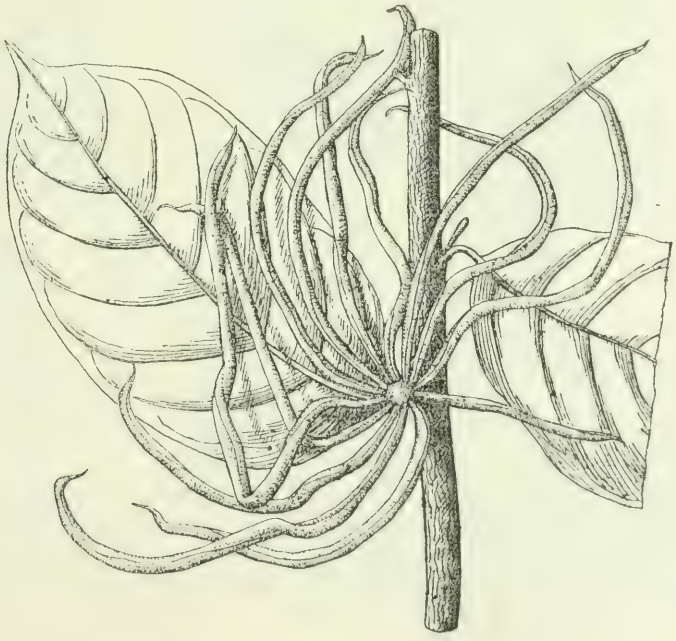
Es ist natürlich möglich, dasz diese Galle das erwachsene Stadium der folgenden ist. Aber nur Untersuchungen am Ort und Stelle würden es möglich machen, dies sicher zu stellen. Kleine und wahrscheinlich junge getrocknete Gallen waren ebenfalls gedreht.

Fundstelle: *Sumatra.* Oberhalb Baros, Dolok, Oeloeanisches Grenzgebirge, Juni 1915. A. V. THEUNISSEN coll.; idem Juli 1916 Talanggebirge, Padangsche Bovenlanden, pl. 1450 M, 29, October 1918, H. A. BÜNNEMEYER coll. No. 5307; Tapanoeli, 23. November 1918, A. V. THEUNISSEN coll. No. 3.

13, *Rindengalle.*

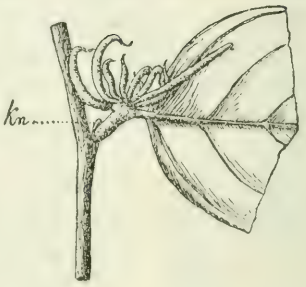
An dieser Styrax-Art fanden wir unter Material, das Herr THEUNISSEN gesammelt hat, ausser der spiralig ge-

Figur 10. Eine Einzelgalle (N. 11.) an Styrax sumatranus. × 2/3.



Figur 11. Erwachsene Galle (N. 12) an Styrax sumatranus J. J. S. × 2/3

drehten Galle auch solche, welche der Hauptsache nach denselben Bau zeigen wie die dritte Galle an St. benzoin und auch die vorige Galle. Die Gallen bestehen aus einer kreisrunden zentralen Stelle, welche unmittelbar an der Rinde des Zweiges, besonders des Blattstieles befestigt ist. An dieser Stelle sind dann lange Tuben herumgestellt, wie das in Figur 11 gut zu sehen ist. Die Tuben sind etwas gebogen, stehen aber nach allen Seiten ab und haben eine Öffnung über ihrer ganzen Länge. Am Ende sind sie zierlich scharf zugespitzt.



Figur 12. Junge Galle (N. 12) an Styrax sumatranus J. J. S. × 2/3.

In Figur 12 ist eine ganz junge Galle abgebildet. Diese ist an der Oberseite des Blattstieles nahe der Stammbasis entwickelt und besteht noch aus ganz kurzen, etwas nach oben und innen gekrümmten Röhren.

Fundstelle: *Sumatra W. K.* Pardamon bei Baros, 10. Mai 1915. A. V. THEUNISSEN coll. No. 1.

14. *Endknospengalle.*

An den Spitzen, meistens von Kurztrieben fand ich Gallen, welche in der Hauptsache den Gallen an Styrax japonicus (Siehe No. 6) ähneln. Sie sind aber nicht aus so vielen einzelnen Gallen zusammengesetzt wie diese. Siehe Figur 13. Meistens sind es vier bis acht Einzelgallen, welche mit einander einen ganzen Knäuel bilden. Die Gallen selbst sind breite, kurz- oder langgestielte Säcke, welche aus Blättern entstanden sind. Sie sind ungefähr 15—20 cM. lang und 10—12 cM. breit, und nicht der Länge nach gespalten. Nur an der Oberseite, befindet sich eine Öffnung, die im Anfang sehr eng ist, später aber beim Reifwerden sich öffnet, wie das in der Figur 13 zu sehen ist. Im Inneren befindet sich eine geräumige Kammer, deren Wand mit einigen stumpfen im Lumen ausragenden Wucherungen versehen ist.

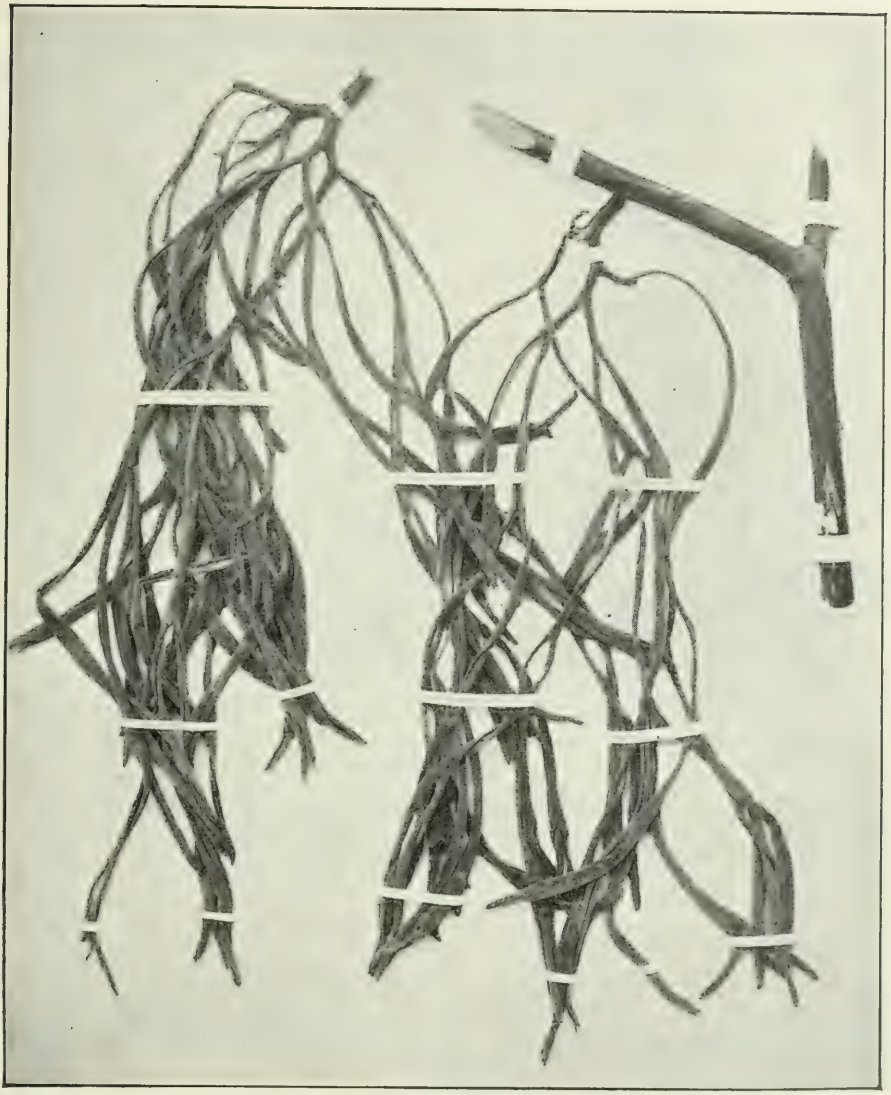
Figur 13. Endknospengalle an Styrax sumatranus J. J. S. × 2/3.

Fundstelle: *Sumatra.* W. K. Sibolga-Taroetoeng, 23. November 1918. A. V. THEUNISSEN coll. No. 2.

VI. Styrax-spec.

15. *Rindengalle.*

Diese Galle macht den Eindruck eines Hirschhornfarnes. Sie ist die grösste dieser merkwürdigen Gallenserie und entsteht an beliebigen Stellen der Rinde der Zweige. Der Stiel ist kurz aber kräftig, ungefähr 6—10 mM.



Rindengalle von Styrax spec. N. 15.

dick, verzweigt sich dichotomisch, und die Seitenzweige auch wieder dichotomisch. Dabei fanden wir unter dem Material zwei Typen.

I. Die Gallen sind nur aus einigen dichotomischen Verzweigungen zusammengesetzt, die Verzweigungen sind dabei sehr lang und hängen in Büscheln nach unten. Die Endabschnitte sind auch sehr lang und etwas zugespitzt. Die ganze Galle kann ungefähr 35 c. M. lang werden. Eine Abbildung davon findet man auf Tafel 1, auf ein Drittel der natürliche Grösse verkleinert.

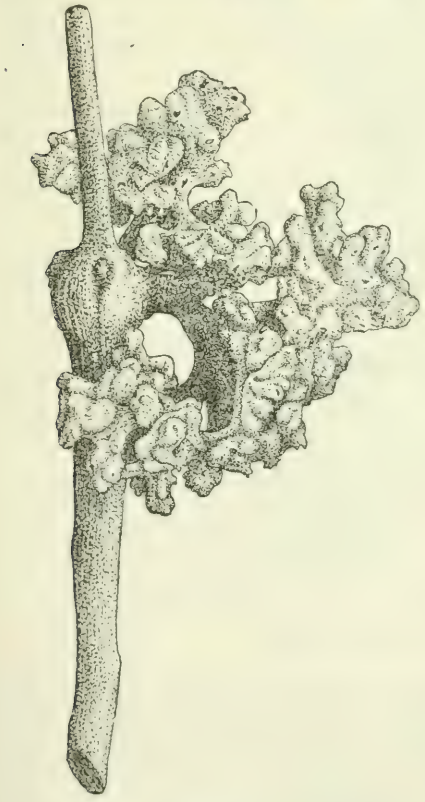
II. Die Verzweigung geht viel weiter und die Äste bleiben dabei viel kürzer. Dadurch wird ein nach allen Seiten abstehendes Büschel gebildet. Die Endverzweigungen sind kurz und gabelförmig. Die ganze Galle ist ungefähr 30 cM. lang und 25 cM. breit.

Äusserst merkwürdig ist es, dasz die Gallen vom Anfang bis zur Spitze eine Längsspalte zeigen, welche also alle Verästlungen folgt.

Im Innern leben Tausende und Abertausende von Tieren in allen Entwicklungsstadien.

Fundstelle: *Typus I: Sumatra O. K.* Unterhalb Bandarbaroe bei Sibolangit im sekundärwald ± 800 M. 18. Juni 1917. J. A. LÖRZING coll. No. 5147.

Typus II: Sumatra. O. K. Oberhalb Bandarbaroe bei Sibolangit im Urwald ± 1100 M, 16. Juni 1918. J. A. LÖRZING coll. No. 5760.



Figur 14. Stengelgalle an Stryax spec. $\times {}^{2}/_{3}$.

16. *Rindengalle.*

Eine korallenförmige Galle wurde von Herrn LÖRZING entdeckt. Diese ist kurzgestielt und bildet ausser einigen Hauptverzweigungen viele kurze Zweige und Ausbuchtungen, die ganz dicht gedrängt bei einander stehen. Die ganze Missbildung macht also den Eindruck eines Korallenstockes. Die Röhren sind geschlossen und nur an den stumpfen Endverzweigungen befinden sich die runden Öffnungen. Sie ist mit keiner der von mir gesehenen Gallenbildungen an Styrax zu vergleichen; wohl hat sie einige Ähnlichkeit mit der Galle an Styrax obassia, welche von MATSUMURA beschrieben worden ist. (Siehe No. 8). Wenigstens die Endverzweigungen der tubenförmigen Auswüchse, welche in beiden Fällen die Öffnungen zeigen, haben beide Gallen gemein.

Die ganze Galle ist aus der Rinde entwickelt, der Stiel ist ungefähr 6 mM. breit. Ich besitze leider nur ein unbeschädigtes Exemplar dieser merkwürdigen Galle, und zwei Bruchstücke. Bei dem abgebildeten Exemplar Figur 14 war der Stengel oberhalb der Anheftungsstelle der Galle abgestorben.

Fundstelle: Im Urwald. *Sumatra O. K.* Bandarbaroe, Medan ± 800 M, 13/X. 1917. J. A. LÖRZING coll. No. 5348.

17. *Blumengalle.*

Diese Styrax-Art ist wahrscheinlich dieselbe, an der die beiden Gallen No. 15 und No. 16 vorkommen. Sehr reichliches Material befindet sich

Figur 15. Blumengalle an Styrax spec. × 2/3.

sowohl in meiner eignen Sammlung wie in der des Herbarium Generale des botanischen Gartens. Diese Gallenform unterscheidet sich sofort von allen andern durch ihre dünne zylindrische Gestalt und dadurch, dasz sie der Länge nach ein ganz geschlossenes Rohr bildet.

An der Basis und an der Spitze ist sie etwas verschmälert und an diesem Ende befindet sich eine kleine Öffnung. Sie sind 5—9 cM. lang

und 2—3 mM. breit, dabei gewöhnlich etwas gekrümmt. Die Oberfläche hat einige schwer sichtbare Längstreifen und ist dicht behaart. Die Haare ähneln ganz denen, welche den Kelch bedecken, und die Basis oder der Stiel der Galle ist ganz so braunrot behaart wie auch der normale Blumenstiel.

Da keine jungen Stadien vorliegen, ist es nicht möglich, sie ganz sicher morphologisch zu deuten, aber aller Wahrscheinlichkeit nach haben wir Blumengallen vor uns. Man findet sie alle in den Achseln der kleinen Vorblätter, wie das in der beigefügten Figur 15 deutlich zu sehen ist. Nur in einem Fall sass sowohl eine Blume wie eine Galle an einer solchen Stelle (Figur 15 bei a); aber es kommt auch vor, dasz mehr als eine Blume an einer Stelle sich befindet.

Die ganze Galle ist ein modifizierter Kelch und daraus erklärt es sich, dasz die Galle ein Rohr bildet und dasz sie nicht wie die meisten andern der Länge nach geöffnet ist. Der Blumenstiel ist dabei sehr kurz geblieben, kürzer als ein normaler Blumenstiel. Auf dem Boden am Anfang der Galle waren noch einige Auswüchse su sehen; ob dies aber wirklich Rudimente der übrigen Blumenorgane sind, liess sich an dem getrockneten Material leider nicht mehr feststellen, jedenfalls muss die Infektion sehr früh stattgefunden haben. Im Inneren fand ich die Reste von Blattläusen. Herr LÖRZING, welcher die Galle entdeckt hat, schrieb auf seiner Sammeletikette, dasz die Röhre von kleinen blattlausähnlichen Tieren bewohnt waren, welche auf der blossen Haut ein Jucken verursachten, was auch bei anderen Styraxaphiden beobachtet worden ist, auch von mir selbst.

Fundstelle: Im Sekundärwald bei Sibolangit, Medan, *Sumatra Ost-Küste*, ± 350 M, 18. April 1918 J. A. LÖRZING coll. N. 5641.

18. *Rindengalle.*

An einem getrockneten Zweig dieser unbestimmten St.-Art fand ich eine der merkwürdigsten Gallen. Leider war nur ein Exemplar vorhanden und dieses ist, glaube ich, nicht ganz unverletzt.

Figur 16. Stengelgalle an Styrax spec. × 2/3.

Obschon der Sammler auf der Etikette geschrieben hat „nur Früchte und Gallen", war nicht mehr als dieses einzige Exemplar zu finden.

Die Galle ist nur an der Oberseite geöffnet und bildet ein trichterförmiges Gebilde (Siehe Figur 16), das mit ziemlich breiter Basis mit einem Blütenzweig verbunden ist. Es ist sicherlich eine Rindengalle. Nur der Gipfel des Blütenzweig-Astes ist übriggeblieben, wenn auch verkümmert. An der Oberseite ist die Galle weit offen und die

Ränder sind etwas umgeschlagen; doch mag es sich herausstellen, dasz dieses nur durch das Schrumpfen beim Trocknen verursacht worden ist. Die ganze Oberfläche ist runzelig und mit in der Länge verlaufenden, untiefen Falten versehen, die Epidermis ausserdem mit zerstreuten braunen Sternhaaren überdeckt. Im Innern fand ich eine Anzahl vertrockneter Läuse

Fundstelle: *Sumatra*, Galoengi, Karolanden. ± 400 M. ü. M. No. 473 15. Juli 1919. J. A. LÖRZING coll.

NEW OR NOTEWORTHY MALAYAN ARACEAE 2.

BY

Capt. C. R. W. K. VAN ALDERWERELT VAN ROSENBURGH.

With plates 2 and 3.

Wherever the contrary has not been mentioned the following diagnoses were made after dried material and the descriptions of the colours were taken from the field notes of the collectors.

Aglaodorum Griffithii, SCHOTT, Gen. Aroid., tab. 58; ENGL., in Pflzrch, LXIV (23 *Dc*), Arac.-Philod.-Anub., 34, fig. 16.

ENGLER says in the diagnosis of the genus Aglaodorum given in Pflanzenreich „staminodia prismatica 1—3 ovaria circumdantia". SCHOTT too speaks of „neutri prismatici" and draws them in his table mentioned above whilst they are not represented in ENGLER's fig. 16.

Since, when making the artificial key to the determination of the aroideous genera, occurring in my previous paper on some New or Noteworthy Malayan Araceae, I had not yet set eyes on a specimen of the species, I took the presence of staminodes as a generic character from the said authors.

Now I have had the opportunity to examine a living specimen cultivated in the Buitenzorg Gardens, flowering and fruiting November 1920; this specimen agrees exactly with ENGLER's fig. 16 and has *no* staminodes encircling the ovaries but it has the lower stamens sterile, which, however, are in aspect not different from the fertile ones when seen from above.

ENGLER says nothing about the colours. The specimen mentioned had the leaves green, the peduncle green in the upper part, yellowish-green towards the base, the spathe green, the stalk of the spadix ivory-white, glossy, the ovaries white, glossy, with a bright-yellow, glossy stigma, the masculine inflorescence ivory-white, opaque.

Amorphophallus campanulatus (RXB.), BL., in DEC., Descr. Herb. Tim., in Ann. Mus. Hist. Par., III, 366; BL., in Rumph., I, 139, tab. 32, 33; ENGL., in Pflzrch, XLVIII (IV, 23 *C*), 76; *A. virosus*, N E. BR., in Bot. Mag., tab. 6978; *A. rex*, PRAIN, HK. F., Flor. Br. I., VI, 514; ENGL., l. c., 75, fig. 27; *Arum campanulatum*, RXB., HK., in Bot. Mag., tab. 2812.

A. campanulatus BL. and *A. rex* PRAIN are running into each other by intermediates so gradually that they cannot be maintained as two

distinct species and should be better treated as forms of the same species. The typical A. campanulatus BL. is the form with commonly the smaller dimensions and a subglobose appendix, whilst A. *rex* PRAIN commonly represents the form with the larger dimensions and a conoid appendix. Both forms have the feminine inflorescence mostly about 1– $1^1/_2 \times$ as long as the masculine.

A specimen from *Java* (*Kendal*), cultivated in the Buitenzorg Gardens, flowering August 1920, resembled very much HOOKER's plate of *Arum campanulatum* RXB. mentioned above (with the feminine inflorescence about $4 \times$ as long as the masculine) but was distinguished by its strongly deviating proportions: Spadix 50 cm. long; feminine inflorescence at least $8 \times$ as long as the masculine, cylindrical, 25 cm long, 10 cm. thick; masculine inflorescence proportionally very short- and thick-obconoid, here and there even nearly horizontally spreading, at best 3 cm. long, the base as thick as the feminine inflorescence, the apex 20 cm. thick; appendix oblate in general aspect, 25 cm. long including the masculine inflorescence, the thickness varying from 30 to 35 cm.; for the rest (colours, shape of spathe, etc.) as commonly.

Amorphophallus Decus silvae, BACKER & V. A. V. R., this Bull., I^5, *1920*, 369.

The plates belonging to this species, which were not yet ready when my previous paper on Malayan Araceae was published, are accompanying this number. (Plates 2 and 3).

The native on one of the plates is the discoverer of the species.

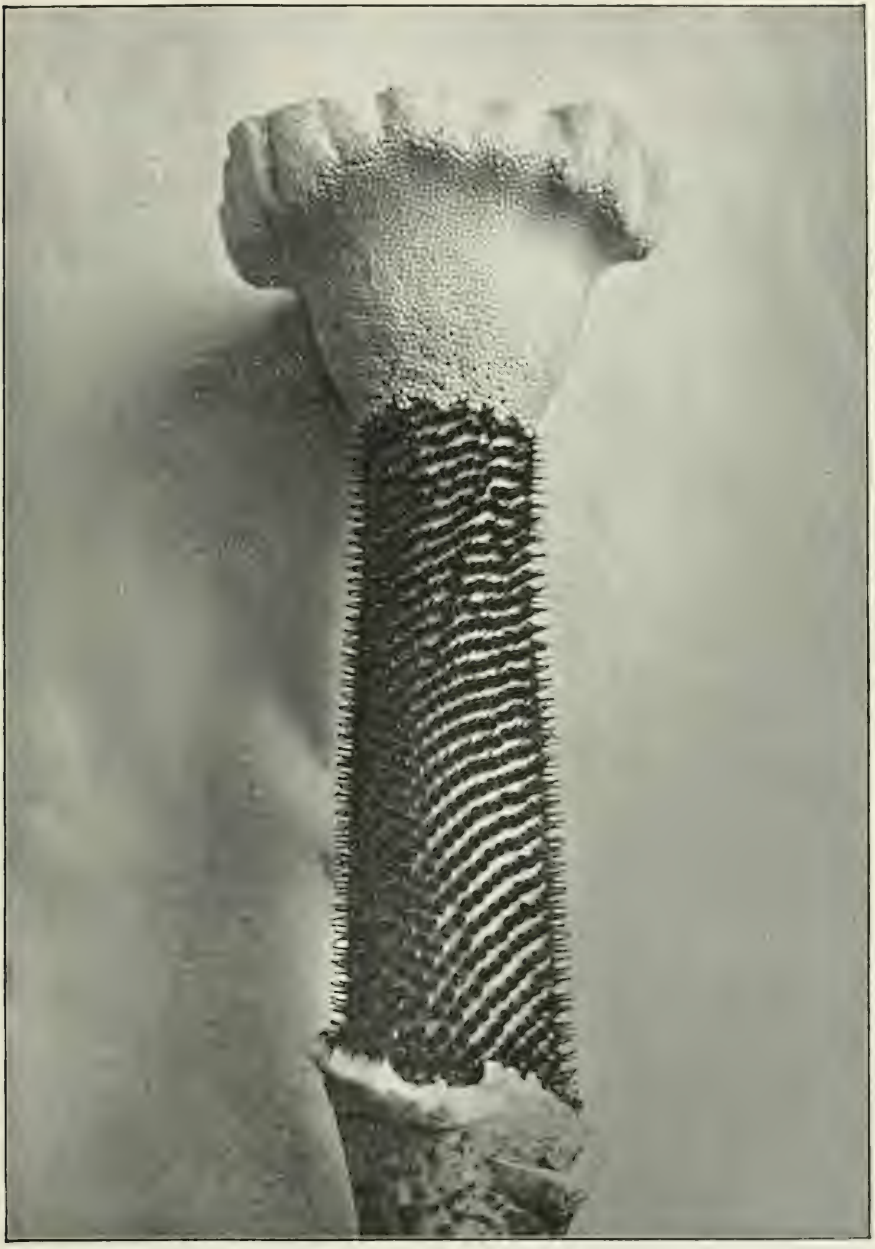
Amorphophallus Lörzingii, V. A. V. R., this Bull., I^5, *1920*, 367.

This species seems to be rather variable in dimensions and colour and shape of the markings. A specimen gathered by the same collector at the same locality (No. 5702, 27 May 1918) is, according to the field notes, distinguished from my previous diagnosis as follows: Petiole to 2 m. high. Peduncle pale-rosy, upward pale-brown with paler spots. Spathe: tube inside dark-flesh-coloured, outside milk-white, longitudinally pale-red-striated in the upper part; throat inside milk-white, outside pale-green; limb pale-green, outside horizontally pale-red-striated near the margin. Spadix: ovaries dark-flesh-coloured, with a milk-white stigma; appendix laterally compressed, $^1/_4$ as thick and $^1/_2$ as broad as long, milk-white.

Amorphophallus obovoideus, V. A. V. R.

Foliorum petiolus . . ; lamina . . . . Cataphylla 2—3, intimum longissimum, lineari-lanceolatum, $\pm$ $22^1/_2$ cm. longum. Pedunculus 70 — 75 cm. longus, relative gracilis, pallide caeruleo-viridis, maculis magnis, oblongis, perpallide viridibus, in media parte caeruleo-punctatis, superioribus saepe confluentibus et epunctatis, in spatham continuatis ornatus. Spatha e tubo

Amorphophallus Decus silvae Backer & v. A. v. R.
(Inflorescentia evoluta).
± $^{1}/_{16}$—$^{1}/_{17}$.



Amorphophallus Decus silvae Backer & v. A. v. R.
(Spadicis pars florifera).
± 2/5.

cylindraceo sensim subcymbiformis, 16 — 19 cm. longa, apice breviter acuminata et leviter recurvata, extus lactea ad pallide viridis, intus perpallida; tubus $2^1/_2$ cm. longus et $2^1/_2$ cm. diam.; lamina explanata 8 cm. lata. Spadix $\pm$ $12^1/_2$ cm. longus; inflorescentia feminea cylindracea, $1^3/_4$ cm. longa, $1^1/_2$ cm. crassa; ovaria perpallide viridia, 1-ovulata, in sicco prismatica, apice truncata, 4 — 6-angulosa; stylus subnullus; stigma capitatum, pallide brunneum; inflorescentia mascula suboblongo-cylindracea, 3 cm. longa, media parte $1^3/_4$ cm. crassa, basi et apice paullo attenuata, $1^1/_2$ cm. crassa, pallide brunnea; appendix obovoidea, 8 cm. longa, 3 cm. crassa, basi attenuata, apice semihemisphaerica, pallide flavida, caeruleo-viridi-afflata.

The dimensions are taken from the field note; the dried material has the dimensions of the inflorescences much smaller.

A leaf of a probably young tuber, gathered at the same locality and belonging probably to this species, is distinguished as follows: Petiole about 30 cm. long, slender, darker than the penduncle; lamina 3-partite; primary branches about 25 cm long, forked; pinnae (leaflets) 0 — 2 on each side below the fork-branches, lanceolate, $7 - 17 \times 3^1/_2 - 5^1/_2$ cm., the lowest sessile, the higher adnate with a cuneate base, the apex rather suddenly long-subcaudate-acuminate; highest leaflets binate or subbinate.

Sumatra (*Deli, Sibolangit*, J. A. LÖRZING No. 5771, in moist primeval forest, alt. 500 m., 25 June 1918).

Amorphophallus Cobra, V. A. v. R.

Foliorum petiolus . . . ; lamina . . . . Cataphylla . . . , intimum longissimum, lineari-lanceolatum, usque $27^1/_2$ cm. longum. Pedunculus $\pm$ 70 cm. longus, basi 2 cm. crassus, apicem versus attenuatus, infra apicem paullo incrassatum 1 cm. crassus, pallide brunneus, maculis paucis, magnis, rotundatis vel oblongis ornatus et obscurius brunneo-punctatus, a basi apicem versus sensim pallidior et viridescenti-afflatus. Spatha e basi convoluto-cylindracea navicularis, $\pm$ 20 cm. longa, medio $\pm$ $8^1/_2$ cm. lata, apice super spadicem incurva, extus pallide rubro-brunnea, maculis parvis, copiosis, pallide flavidis ornata, intus multo pallidior. Spadix $\pm$ $13^1/_2$ cm. longus; inflorescentia feminea breviter cylindraceo-obconoidea, $1^1/_2$ cm. longa, basi $1^1/_2$ cm., apice $1^3/_4$ cm. crassa; ovaria breviter oblonga, subprismatica, pallide viridia, apice in stylum brevem abrupte attenuata, 1-ovulata; stigma crasse capitatum, leviter sulcatum; inflorescentia mascula cylindraceo-obovoidea, $2^1/_4$ cm. longa, basi et apice truncata, $1^3/_4$ cm. crassa, infra apicem 2 cm. crassa, pallide brunnescens; appendix elongato-ellipsoidea, $\pm$ 10 cm. longa, medio $2^1/_2$ cm. crassa, lactea vel pallide flavida, apice rotundata.

The material is accompanied by 2 leaves which are so absolutely different that they cannot belong to one and the same species. The whole flower imitates deceptively the dilated neck and head of an erected Cobra or hooded snake (Naja tripudians).

Sumatra (*Deli, Sibolangit*, J. A. LÖRZING No. 5522, primeval forest, alt. 400 m., 17 February 1918).

Amorphophallus incurvatus, V. A. V. R.

Foliorum petiolus . . . . . ; lamina . . . . . Cataphylla . . . . Pedunculus ± 75 cm. longus, pro ratione gracilis, viridis, pallide viridi-maculatus. Spatha e basi convoluto-obconoidea navicularis, postice excurvata, apicem versus super spadicem falcato-incurvata, explanata ovata, ± 11 cm. longa, supra basin truncato-rotundatam $4^1/_2$ cm. lata, apice acuta, extus lurido-violacea; pallide viridi-maculata. Spadix ± 7 cm. longus, parte basali brunnescens, parte apicali pallide griseus, subalbus; inflorescentia feminea cylindracea, $1^3/_4$ cm. longa, in sicco ± 4 mm. crassa; ovaria brevia, subprismatica, 4-angulosa, apice truncata, 1-ovulata; stylus angustе cylindraceus, quam ovarium paullo brevior, basi vix conoideo-incrassatus; stigma capitatum, parvum, leviter sulcatum; inflorescentia mascula subcylindracea, fere $2^1/_4$ cm. longa, in sicco supra basin ± 4 mm. crassa, apice et basi paullo contracta; appendix subcylindracea, ± 3 cm. longa, in sicco ± 4 mm. crassa, basi paullo contracta, apice rotundata.

Sumatra (Mt. Koerintji, in forest, alt. 1770 m., H. A. B. BÜNNEMEIJER No. 8835, 15 March 1920).

Amorphophallus variabilis, BL., in Rumph., I, 146, tab. 35, 37 *H*; V. A. V. R., this Bull., I[5], *1920*, 367.

This species has the petiole, peduncle and spathe so exceedingly variable in colour and shape of the markings, that it is practically impossible to define it in a diagnosis. Sometimes the colour is entirely equally pale-green without a single paler or darker point or spot, but in most cases there are a few scattered to numerous crowded whitish, purplish, dark- or olive-green to reddish-black points and (or) spots, and in still other cases the colour is equally olive-green to purple with some paler or (and) darker points or spots.

Arisaema ramulosum, V. A. V. R.

Trisecta. — Tuber parvum, 1—2-foliatum. Foliorum petiolus 20—40 vel saepius 40—60 cm. longus, usque ad medium vel paullo longius vaginatus, cum vagina viridis vel subviridi-griseus, plus minusve conspicue obscure marmoratus, maculis obscuris rubro-puncticulatis; vagina apicem versus sensim arcuata vel apice obtuse rotundata; lamina 3-foliolata; foliola supra obscure viridia, nitentia, subtus pallidiora, nitidula, omnia acutiuscule vel obtusiuscule acuminata, breviuscule, graciliter apiculata; foliolum intermedium petiolulatum, late rhomboideo-ellipticum, 8—20 × $4^1/_2$—11 cm., aequilaterum, basi cuneatum vel rotundato-cuneatum; foliola lateralia sessilia vel breviter petiolulata, quam foliolum intermedium paullo minora ad paullo majora, plus minusve inaequilatera, postice quam antice paullo latiora, basi antica cuneata, basi postica rotundato-cuneata vel rotundata. Pedunculus quam petiolus brevior, $17^1/_2$—30 vel saepius 30—40 cm. longus, pallide viridulus, sursum

albidus, ceterum longitudinaliter atro-caeruleo-striatus, inter strias maculatus. Spatha arte expansa 6—15 cm. longa; tubus elongatus, lateraliter compressus, ± dimidium longitudinis spathae metiens vel paullo longior, circiter 1 cm. amplus, marginibus anguste tegentibus, imo attenuatus, fauce limbo ± horizontaliter sed non late recurvo, intus opaco-albus, extus albus vel pallide caeruleo-griseus, apicem versus cum marginibus recurvis viridulus vel leviter pallide flavido-viridis, ceterum longitudinaliter graciliter atro-caeruleo-striatus, inter strias maculatus; lamina oblongo-triangularis, ± horizontaliter incurvata, acuta, cuspidata, viridis, conspicue violaceo-brunneo-afflata, extus subopaca, intus splendens, fasciis atris (contra lucem conspectis atro-violaceo-rubris), apicem versus angustatis, basin versus dilatatis, basi fascia transversa, similiter colorata unitis late marginata. Spadix raro 2-, plerumque 1-sexualis, quam spathae tubus paullo longior, pallide viridis, atro-purpureo-violaceo-maculatus, appendice atro-caeruleo-striata et maculata, apicem versus nitenti-atro-caerulea; inflorescentia feminea quam dimidium longitudinis tubi spathae paullo brevior, conoideo-cylindracea, dense florifera; ovaria ovoidea, viridia, apice breviter conoideo-attenuata; stigma sessile, parvum, rotundum, applanatum, latitudinem apicis ovarii aequans; inflorescentia mascula laxe florifera, floribus 2—3-andris; antherae atro-purpureae; pollen pallide glaucescens; appendix subuliformis, parte inferiore organis neutris munita, infra apicem rectum vel leviter proclinatum organis neutris ramulosa, ceterum nuda; organa neutra plus minusve arcuato-ascendentia, partim recta, partim curvata, partim subsigmoidea; organa neutra inferiora gracilia, breviter filiformia, apice nitenti-atro-caerulea, spadicis femineae numerosa (usque ± 36), usque 5 mm. longa, spadicis masculae pauca (0—6), breviora, usque 2 mm. longa; organa neutra superiora crassiuscula, 1—15, longissima ± 5 mm. longa, brevissima interdum rudimentaria, vix conspicua et specie deficientia.

Java (Preanger Regencies, Pengalèngan, in forest, alt. 1400 m., J. J. SMITH No. 775, October 1921).

Arisaema barbatum, BUCH., in LECOMTE, Not. Syst., I, 366; A. laminatum, BL., auctt. plur.

The plants occurring in the Buitenzorg Herbarium, referrible to this species, do not agree entirely with BUCHET's diagnosis and are distinguished as follows:

Leaves with the petiole to 40 cm. long, the sheath rather broadly rounded at the apex, the lamina with the segments sessile or more or less distinctly petiolulate, elliptical-oblong to -lanceolate, to 26×13 cm., the terminal (medial) one equal-sided, cuneate at the base, the lateral ones unequal-sided, broadest on the outer (lower) side, with the inner base cuneate, the outer base broadly rotundate-cuneate to rotundate. Spadix 6—10 cm long. Male spadix with the inflorescence to 3 cm. long, loosely floriferous, the flowers 2—3-androus; appendix subuliform, hardly exceeding the tube of the spathe in the smaller, but distinctly so in the larger specimens, the lower

part provided with 0 — 10 or even more loosely placed, slender, shortly subuliform neuters ± 2 — 5 mm. long, the upper part divided into mostly many filiform-subulate, pale to dark, often flexuose or curved branches (neuters) 1 — 3 cm. long, the medial part naked (nudate) or provided with more or less numerous laxly placed neuters passing gradually into those of the lower part and those of the upper part. Feminine spadix with the inflorescence densely floriferous, the ovaries globose-ovoid, whether or not more or less depressed, the style shortly cylindrical, less than half as long as the ovary, the stigma small, flattish; appendix like that of the male spadix

Epipremnopsis media (ZOLL & MORR.), ENGL., Pflzrch, XXXVII (IV, 23 *B*), Addit. Arac.-Pothoid., 1, p. p., fig. 19*a*; *Scindapsus medius*, ZOLL. & MORR., Syst Verz., No. 82.

Specimens gathered in *Java* are distinguished as follows: Internodes of the ultimate branches short, sometimes hardly more than 1 cm. long. Petiole of the young plant slender, to about 10 cm. long, of the adult plant to 35 cm. long, relatively shortly and narrowly sheathed at the base, the inner side gradually grooved towards the lamina, the sheath caducous, the knee short, to ± 2 cm long; lamina more or less coriaceous, cordate-ovate in outline, of the young plant small and entire, to 12 × 6 cm., of the adult plant large, to ± 40 × 30 cm., provided very commonly near the costa with suboblong to rotundate-triangular holes 3 — 30 mm. long, the margin varying from irregularly lobed to incised nearly to the costa; terminal lobe subrhomboidal-cuneate; lateral lobes 2 — 5 on a side, short-oblong to long-linear, 3 — 12 cm. broad, with the apex narrowed and shortly acuminate or broad and obliquely truncate with the antical corner bluntish to falcate-acuminate, the postical corner blunt to broadly rounded; lowest lateral lobes narrowly falcate, or broadly semiovate with the upper side rather straight and the lower side rounded; primary veins 1 — 3 in each lobe, distinct, prominent beneath; secondary and tertiary veins reticulate, forming a fine or slender submarginal collective-vein. Cataphylla long-triangular-lanceolate, soon drying up. Peduncle slender, ± 10 cm. long, pale-green. Spathe when young between boat- and spindle-shaped, gaping, 4 — 8 cm. long, to 3 cm. diam., acutely acuminate, pale-yellow or the inner side very pale-greenish-yellow and the outer side pale yellow-green, afterwards quite open, ovate, reflexed, drying up, deciduous. Spadix cylindrical, flowering 3 — 6 cm. long, $^3/_4$ — $1^1/_4$ cm. diam., slightly narrowed at the base and the bluntly rounded apex, pale-yellow or grey-yellow, on a stalk 1 — $1^1/_2$ cm. long; ovaries obpyramidal, the apex truncate, 4 — 6-angular, 4 — 6 mm. thick; stigma roundish to shortly linear, not or slightly elevated, dirty-white, soon becoming fuscous.

In the cataphylla of the peduncle I have found more or less numerous spicular (acicular) cells but in the spathe and ovaries none.

Epipremnum elegans, ENGL., in Pflzrch, XXXVII (IV, 23 *B*), Arac.-Monster., 65, fig. 27.

BEGUIN's No. 939 from *Ternate Island* (*Kota Baroe*, in a garden, alt. 3 m., flowering and fruiting 13 October 1920), which may be referred to this species, is distinguished as follows: Stem to 40 m. high scandent. Leaves with the lamina to 90 × 55 cm., with the laciniae more approximate. Ovaries with the stigma shortly linear: filaments very shortly and broadly triangular at the apex. (Forma ternatensis).

Holochlamys ornata, V. A. V. R.

Herba majuscula, usque 40 cm. alta, caudice brevissimo, foliis nutantibus. Foliorum petiolus ± 12—22 cm. longus, inferne 3—13 cm. longe vaginatus, ceterum subteres, antice anguste applanatus (transversaliter sectus truncato-ovatus), deorsum sordide roseus vel olivaceus et minute, pallide maculatus, sursum pallide viridis vel sordide albidus, obscurius maculatus maculis longitudinaliter ovalibus vel lineari-ovalibus, sparsis vel confluentibus, ± olivaceis, in medio puncto sordide albido munitis; vagina a basi latiuscula apicem versus sensim angustata, sordide albida vel pallide rosea, extus maculis minutis, pallidis vel obscurioribus, flavidis vel brunneis ornata, postremo exsiccata, dilacerata; geniculum ± $1^1/_2$—2 cm. longum, antice canaliculatum et anguste undulato-2-cristatum, postice teres, perpallide viride, leviter obscurius viridi-punctatum; lamina in vivo coriacea, lineari-lanceolata, ± $27^1/_2$ —$37^1/_2$ × 3—5 cm., utrinque subaequaliter acute angustata, basi in cristas geniculi transiens, apice breviter et acute apiculata, margine subundulata, supra obscure viridis, saltem dimidia parte superiore secus costam vitta pallidiore, flavido-viridi, irregulariter flammiformi ornata, subtus pallide viridis; costa supra plana, pallide viridi-flava, subtus prominens, semiteres, albida vel viridescenti-albida; venae primariae 8—10 utrinque, angulo acuto (± 30°) ascendentes, apicem versus sursum curvatae, basi longe decurrentes, vena secundaria 1, subaequicrassa vel multo graciliore et venis secundariis tertiariisque pluribus, gracillimis interpositis. Pedunculus ± 3 cm. longus, demum longior, deorsum albidus, sursum viridis. Spatha relative tenuis, elongato-ovoideo-cylindracea, ± 4 cm. longa, fere 1 cm. ampla, leviter hians, sordide flavido-albida, acuta, mox marcescens. Spadix sessilis, elongato-ovoideo-cylindraceus, ± $3^1/_2$ cm. longus et $^3/_4$ cm. crassus, perpallide flavidus, apicem rotundatum versus paullo attenuatus; perigonia prismatico-cupuliformia, 2 mm alta, 4—6-angulosa; ovaria prismatico-oblonga ve -obovoidea, 3 mm. alta, 4-angulosa, apice rotundata, dissipemento spurio valde intruso sub-2-locularia, ovulis haud multis, basifixis; stigma depressum, cruciformi-4-lobatum, hinc inde breviter lineari-oblongum vel 3-lobatum, mox nigrescens. (Fig. a).

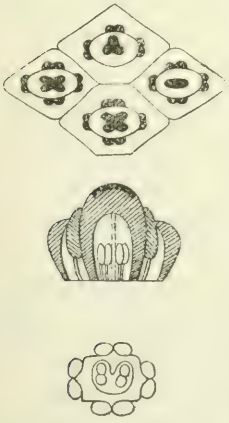


Fig. a.

The description of this very decorative species is taken from a living plant cultivated in the Buitenzorg Gardens, flowering June to August 1920. *New Guinea* (A. C. DE KOCK No. 95).

Homalomena cristata, V. A. V. R.

Chamaecladon. — Herba parva, ± 15 cm. alta, caudiculo ± $2^1/_2$ cm. longo. Foliorum petiolus $2^1/_2$ — 5 cm. longus, $^1/_3$ — $^1/_2$ parte basali vaginatus, parte superiore cristis pluribus, longitudinalibus, anguste aliformibus, conspicue crispato-undulatis munitus (fig. b); lamina subcoriacea, obovato-lanceolata, $3^1/_2$ — 8 × $1^1/_2$ — $3^1/_2$ cm., supra obscure, subtus pallide viridis, dimidia parte superiore latissima, apice subabrupte et breviter acuminata, basi plus minusve anguste rotundato-cuneata; costa subtus basin versus decidue crispato-cristata; venae primariae secundariis subsimiles, plures, venis tertiariis quaternariisque gracilioribus interpositis. Pedunculi graciles, $1^1/_2$—2 cm. longi. Spatha elongato- vel conoideo-ovata, 1—2 cm. longa, 3—4 mm. ampla, viridis, acuminata vel subacuta. Spadix quam spatha paullo brevior, usque $1^3/_4$ cm. × longus; inflorescentia feminea breviter cylindrica, usque $^1/_2$ cm. longa et $^1/_4$ cm. crassa; ovaria globoso-ovoidea, viridia; stigma parvum, sessile, rotundum; staminodia clavata, albida; inflorescentia mascula quam feminea 2 — 4-plo longior, pallide viridis vel flavida; flores masculi 2 — 3-andri, thecis sub connectivo non absconditis.

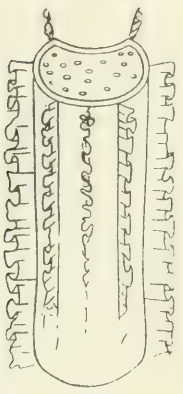


Fig. b.

The description is taken from dried and living plants. A non-flowering plant, cultivated in the Buitenzorg Gardens, which seems to be a more strongly developed specimen of this, differs in having the dimensions of the leaves twice to thrice as large, with the lamina elliptical-oblong, broadest at the middle, and the base abruptly rotundate-truncate, hardly cordate-emarginate. The crests of the petiole are partly deciduous, leaving the petiole slightly, longitudinally ribbed when they fall.

Sumatra (*Pajakombo, Harau-Ravine*, HORST, December 1918; *Ajer-Poetih-Ravine*, alt. 400 m., W. DOCTERS VAN LEEUWEN, Januari 1920).

Homalomena oblanceolata, V. A. V. R.

Chamaecladon. — Herba parva. Foliorum petiolus quam lamina ± $2^1/_2$-plo brevior, 4 — 7 cm. longus, $^1/_3$ parte basali vaginatus, sordide ruber, antice apicem versus canaliculatus, lateraliter rugulosus; lamina oblanceolata, ± 10 — 18 × 4 — 7 cm., ad vel supra mediam partem latissima, paullo inaequilatera, supra saturate viridis, subtus pallidior, apice breviter acuminata, basi acuta vel subrotundato-cuneata; venae primariae 5 — 6 utrinque, angulo acuto ascendentes, apicem versus sursum arcuatae, venis secundariis, tertiariis quaternariisque gracilioribus interpositis. Pedunculus probabiliter perbrevis. Spatha elongato-ovoideo-ellipsoidea, ± $1^1/_2$ — 2 cm. longa, $^1/_2$ cm. ampla

Spadix subsessilis, usque $1^1/_2$ cm. longus; inflorescentia feminea breviter cylindracea; ovaria conoideo-ovoidea, 2 — 3-locularia, ovulis placentae centrali fere tota longitudine affixis (fig. c.); stigma late discoideum, quam apex ovarii latius, deciduum; staminodia longitudinis ovarii $^3/_4$ partes metientia, stipitato-clavata; inflorescentia mascula elongato-conoideo-cylindracea, quam inflorescentia feminea $\pm$ 2-plo longior; flores masculi plerumque 2-andri, thecis sub connectivo non absconditis (fig. c').

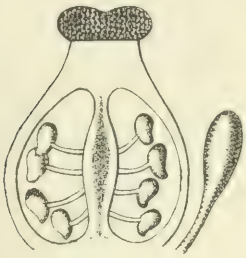


Fig. c.

The description is taken from dried material of a specimen cultivated in the Buitenzorg Gardens. — Resembles in aspect very much H. batuensis ENGL., of which, however, the flower is unknown.

Sumatra (*Deli*, JAHERI).

Homalomena lucidula, V. A. V. R.

Chamaecladon. — Herba parva, caudiculo $\pm$ 2 cm. longo. Foliorum petiolus $2^1/_2$ — $6^1/_2$ cm. longus, viridis vel purpurascenti-afflatus, dimidia parte basali vaginatus; lamina subcoriacea, elongato-lanceolata, $6^1/_2$—13 × $1^1/_2$—2 cm., paullo (vix) inaequilatera, supra lucidula, obscure viridis, subtus pallidior, basi acuta, apice acuminata, breviter apiculata; venae primariae 3 utrinque, subtus prominentes, venis secundariis tertiariisque gracilibus, immersis interpositis, angulo acuto ascendentes, apicem versus sursum curvae et margini subparallelae. Pedunculus $\pm$ 2 cm. longus, viridis vel purpurascens. Spatha conoideo-cylindracea, $\pm$ $1^1/_4$ cm. longa, viridis, apice cuspidato-acuminata. Spadix subsessilis, 8 — 12 mm. longus; inflorescentia feminea $\pm$ 2 — 3 mm. longa, pallide viridis; ovaria conoideo-globosa (fig. d), 2-locularia, ovulis apicem placentae non attingentibus; stigma parvum, rotundum; staminodia breviter clavata, sordide albida, breviter stipitata; inflorescentia mascula quam feminea $\pm$ 3 — 4-plo longior, pallide flavida, subeburnea; flores masculi 3-andri, thecis sub connectivo non absconditis (fig d').

Fig. c'.

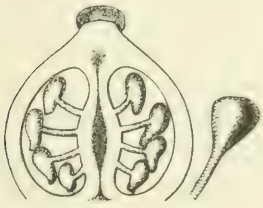


Fig. d.

Fig. d'.

The description is taken from a young specimen cultivated in the Buitenzorg Gardens, flowering December 1919 and January 1920. The adult plant has the dimensions probably somewhat larger.

Sumatra (*Deli*, *Haboko*, in forest, W. DOCTERS VAN LEEUWEN).

Homalomena incerta, V. A. V. R.

Chamaecladon. — Herba ± 30 cm. alta, caudiculo ± 5 cm. longo, $^1/_2$ cm. crasso. Foliorum petiolus gracilis, 5—10 cm. longus, ± ad tertiam partem vel brevius vaginatus; lamina in sicco herbacea, irregulariter oblongo-elliptica, 8—12 × $3^1/_4$—6 cm., ± in media parte latissima, apice acuminata, breviter et graciliter apiculata, basi interdum acuta, plerumque obtusa vel rotundata et imo brevissime acutata; venae primariae ± 3 – 5 utrinque, angulo acuto ascendentes, venis secundariis tertiariisque gricillimis interpositis. Pedunculi graciles, ± $3^1/_2$ — 4 cm. longi. Spatha elongato-ovoidea, 3 — $3^1/_4$ cm. longa, $^3/_4$ — 1 cm. ampla, acuta vel acuminata, viridis. Spadix brevissime stipitatus, quam spatha multo brevior, ± $1^1/_4$ cm. longus; inflorescentia feminea breviter cylindrica, ± 6 mm. longa et 4 mm. crassa; ovaria conoideo-ovoidea, 3-locularia, ovulis placentae centrali tota longitudine affixis; stigma sessile, parvum, rotundum; staminodia quam ovaria plus minus duplo breviora, dimidia parte superiore obconoideo-clavata, dimidia parte inferiore graciliter cylindrica; inflorescentia mascula quam feminea paullo (vix) longior, ± 7 mm. longa.

This rivals H. elliptica HK. F. in shape and size of the leaves but differing totally in the spadix.

Sumatra Ophir District, Mt. Talamau, H. A. B. BÜNNEMEIJER No. 503, forest, alt. 900 m., 28 April 1917).

Homalomena pygmaea (HASSK.), ENGL., Pflzrch, LV (IV, 23 *Da*), Arac.-Philod.-Homal.-Schism., 34, fig. 15 — 16; *Chamaecladon lanceolatum,* MIQ., Flor. Ned. Ind., III, 212, tab. XL; SCHOTT, Gen. Aroid., tab. 60; *Aglaonema pygmaea,* HASSK., Cat. Bog., 57.

This species seems to be very variable. Living specimens cultivated in the Buitenzorg Gardens and dried specimens occurring in the Buitenzorg Herbarium, determined by ENGLER, have the petiole varying from 2 to 15 cm. long, the lamina from broadly oval to relatively narrowly lanceolate, 3—15 × 1 — 6 cm., with the base acuminate to broadly rounded, the apex acute, or suddenly, shortly to gradually long-acuminate, the peduncle about 2—5 cm. long. The specimens are running into each other by intermediates so gradually that it is impossible to draw the precise line of demarcation between the typical form and the varieties *latifolia* and *pumila.*—See also the differences in the figures and plates mentioned above. ENGLER gives figures with ovaries in which the ovules are basal; in SCHOTT's plate the ovules are arranged along the whole placenta, etc. The living plants of the Buitenzorg Gardens have the masculine flowers 3 — 4-androus, as in H. rupicola V. A. V. R.

Forma typica: Petiole green, the sheath green; lamina bright-green, or reddish beneath; spathe green or yellow-green. — TEYSMANN's No. 10826 from *Borneo,* determined by ENGLER, is H. humilis HK. F. or a form of it.

Var. purpurascens (*H. purpurascens*, SCHOTT): Like the type but the sheath of the petiole reddish, the lamina above reddish or dark-green. —HALLIER's No. 3223 from *Borneo*, determined by ENGLER as *var. purpurascens*, is a species near H. humilis HK. F.

Homalomena Kingii, HK. F., Flor. Brit. Ind., VI, 535; ENGL., Pflzrch, LV (IV, 23 *Da*), Arac.-Philod.-Homal.-Schism., 41, fig. 21.

According to the diagnosis and figure given by ENGLER, this species has an oblong-ovate lamina about twice to thrice as long as broad, with a rotundate-truncate base. RAAP's No. 117 from *Batoe Island*, determined and mentioned by ENGLER, however, has a very broadly ovate lamina at best $1^1/_2 \times$ as long as broad, with a slightly cordate-emarginate base, narrowed gradually towards the apex. Specimens from *Sumatra* (BÜNNEMEIJER Nos. 3239, 3254) are distinguished in having the lamina as broad as in the *Batoe* plant but the base is not emarginate but very broadly truncate-cuneate and abruptly, shortly cuneate.

Homalomena sulcata, ENGL., Pflzrch, LV (IV, 23 *Da*), Arac.-Philod.-Homal.-Schism., 45, fig. 25.

WINKLER's No. 2277 from *Borneo* is unknown to me. — Two specimens from an unknown habitat, cultivated in the Buitenzorg Gardens, determined by ENGLER several years ago, differ from the original diagnosis of the species. They are distinguished as follows: Petiole shorter or sometimes somewhat longer than the lamina, $3^1/_2$ - $12^1/_2$ cm. long, green with a reddish sheen, sheathing about $^1/_3$—$^1/_2$ its length, the sheath red or broadly red-margined; lamina elongate-ovate or triangular with broadly rounded basal corners, $7^1/_2$—$12^1/_2 \times 2^1/_2$—$7^1/_2$ cm., red-margined, above moderately dark-green, beneath green intermixed with dirty-red, the base rounded or truncate, whether or not more or less cordate-emarginate; primary veins 3 — 6 on a side, ascending, or the basal ones horizontal or slightly deflexed in the leaves with a truncate or emarginate base. Peduncle 1—$3^1/_2$ cm. long, green. Spathe $1^1/_2$—$2^1/_2$ cm. long, $^1/_3$—$^3/_4$ cm. diam., green, becoming gradually reddish towards the finely long-cuspidate-acuminate apex. Ovaries green, broadly conoid-ovoid, with the stigma as broad as the apex of the ovary; staminodes clavate from a slender base, white; masculine flowers nearly white, 2—4-androus, the 3-androus ones resembling ENGLER's fig. 25 *D.* — These differences may be due to the conditions in which the cultivated plants are placed. — Another specimen, from *Borneo*, approaches the habit described by ENGLER.

Var. subconcolor: Foliorum lamina utrinque viridis sed subtus quam supra pallidior, rubro-cincta; pedunculus apicem versus pallide viridis, ceterum roseus; spatha pallide viridis. — *Sumatra*, (*Deli*, JAHERI; cultivated in the Buitenzorg Gardens, flowering July 1920).

Homalomena refulgens, V. A. V. R.

Chamaecladon. — Herba parva, caudiculo ± 5 cm. longo. Foliorum petiolus quam lamina paullo brevior, 7 — 9 cm. longus, obscure viridis, $^1/_3 - ^1/_2$ parte basali vaginatus, vagina pallidiore; lamina herbacea, triangulari-ovata vel -oblonga, ± 9 12 × 6 9 cm., viridis, supra obscure velutino-refulgens, inter venas leviter convexa, subtus pallidior, basi subcordato-truncata, imo brevissime cuneata, apice subabrupte et breviter acuminata, brevissime apiculata; venae primariae 8 10 utrinque, subtus cum venis secundariis paullo gracilioribus prominentes, venis tertiariis quaternariisque gracillimis, immersis interpositis, basales horizontales, apicem versus sursum curvae, ceterae sensim magis ascendentes. Pedunculi 2 — 4 cm. longi, virides Spatha conoideo-cylindracea, $1^3/_4 - 2^1/_2$ cm. longa, $^1/_2 - ^3/_4$ cm. ampla, viridis, apice acuminata, acumine leviter incurvo. Spadix sessilis, florifer ± $1^1/_2 - 1^3/_4$ cm. longus, 3 — 4 mm. crassus; inflorescentia faminea breviter cylindracea, ± 4 mm. longa, perpallide viridis; ovaria conoideo-lageniformia (fig. e), 2-locularia, ovulis apicem placentae non attingentibus; stigma discoideum, quam apex ovarii non multo crassius; staminodia brevia, clavata ad subglobosa, perpallide flavida, subeburnea; inflorescentia mascula quam feminea ± 3 — 4-plo longior, conoideo-cylindracea, perpallide flavida, subeburnea; flores masculi 2 — 4-(plerumque 3-)andri, thecis sub connectivo non absconditis (fig. d′). — Foliorum intermediorum petiolus eo foliorum normalium similis sed brevior, lamina spathae late hianti simili sed minore.

Fig. e.

The description is taken from a young living specimen cultivated in the Buitenzorg Gardens, flowering December 1919 and January 1920. The adult plant has the dimensions perhaps somewhat larger.

Sumatra (*Deli*, *Sibolangit*, in forest, alt. ± 1000 m., W. DOCTERS VAN LEEUWEN).

Homalomena humilis (JACK), HK. F., Flor. Brit. I., VI, 533; ENGL., Pflzrch, LV (IV, 23 *Da*), Arac.-Philod.-Homal.-Schism., 49, fig. 27; *Chamaecladon humile*, MIQ., Flor. Ned. Ind., III, 213; *Calla humilis*, JACK, in Calctt. Journ. Nat. Hist., IV (No. 13), 11.

Specimens from *Borneo*, cultivated in the Buitenzorg Gardens, formerly determined by ENGLER as H. ovata ENGL. and H. velutina SCORT., are distinguished by the following characters not mentioned in the diagnoses given by HOOKER and ENGLER: Petiole green, with the sheath green or rosy; lamina $1^1/_2 - 3\times$ as long as broad, above bright-green, with an opaque-velutinous appearance when fresh, beneath paler, the base varying from subdecurrent-cuneate to broadly rounded and even slightly cordate-emarginate; peduncle green, yellowish or rosy, as is the spathe; feminine

inflorescence pale-green, masculine pale-green or -yellow; masculine flowers 3—4-androus. The dried plant has the lamina olive-green or -brown, not dark. MIQUEL describes the plant as having a black-red spathe. — H. velutina SCORT. is said to differ in having the petiole somewhat shorter than the lamina, the lamina more velvety, with more numerous (10—15) primary veins on a side, and the spathe blood-red or purplish. A duplicate of SCORTECHINI's No. 276 mentioned in ENGLER's monograph under H. humilis HK. F. var. velutina, occurring in the Buitenzorg Herbarium, has the lamina not invariably longer than the petiole, with only 4—6 primary veins on each side.

Homalomena obscurifolia, V. A. V. R.

Chamaecladon. -Tota planta in sicco obscure fusca, relative parva, ± 25 cm. alta, caudiculo ± 5 cm. longo et 1 cm. crasso. Foliorum petiolus quam lamina nunc paullo brevior nunc paullo longior, 4—8 cm. longus, $^1/_3$—$^1/_2$ parte basali vaginatus; vagina in sicco rubescens; lamina in sicco relative firmiter herbacea, ovato-lanceolata, ± 5—10 × $2^1/_4$—5 cm., supra sub lente densissime et minutissime papillosa, subtus dense et minute pallide verruculosa, ad venas et inter verruculas minutissime papillosa, basi rotundato-cuneata vel late rotundata, imo breviter cuneata, margine crispatula, apice acuminata, breviter et graciliter apiculata; venae primariae ± 3—5 utrinque, venis secundariis, tertiariis quaternariisque, sensim gracilioribus interpositis, ascendentes, apicem versus valde sursum curvae, basi decurrentes. Pedunculi breves, usque ± $1^1/_2$ cm. longi. Spatha conoideo-fusiformis, ± 1—$1^1/_2$ cm. longa et 3 mm. ampla, apice breviter et graciliter cuspidata. Spadix subsessilis, usque $1^1/_4$ cm. longus; inflorescentia feminea brevis, ± 2 mm. longa; ovaria conoideo-ovata (fig. f), ovulis specie subbasalibus; stigma parvum, discoideum; staminodia breviter clavata; inflorescentia mascula quam feminea ± 5-plo longior, ± 1 cm. longa; flores masculi 3—5-andri, thecis sub connectivo non occultis (fig. f′).

Fig. f.

Borneo (HALLIER No. 3223).

Fig. f′.

Homalomena pusilla, V. A. V. R.

Chamaecladon. — Herba parva, foliis nutantibus tantum usque 5 cm. alta, caudiculo brevi. Foliorum petiolus $2^1/_2$—5 cm. longus, sordide roseus, basi $^1/_3$ viridi-vaginatus, ceterum antice canaliculatus, lateraliter, longitudinaliter rugulosus; lamina in vivo relative firmiter herbacea, in sicco tenuior, lanceolata, foliorum majorum 5 — $7^1/_2$ × 2 — $2^3/_4$ cm., smaragdina, supra opaco-velutina, apice sensim breviter acuminata, breviter apiculata, margine

crispatula, basi rotundata vel rotundato-cuneata; costa subtus basin versus lateraliter rugulosa et saepe sordide rosea; venae primariae 3 utrinque, erecto-patentes, subtus prominentes, apicem versus sursum curvae, basi in costa decurrentes; venae secundariae tertiariaeque graciliores. Pedunculus $\pm$ $1^1/_2$ cm. longus, sordide roseus. Spatha cylindracea, $1^1/_2$ cm. vel plus longa, 3 mm. ampla, sursum smaragdina, deorsum sordide rosea, apice acuminata, basi obconoideo-attenuata. Spadix stipite 2 mm. longo, roseo suffultus, juvenilis $\pm$ 11 mm. longus; inflorescentia feminea breviter cylindracea, juvenilis $\pm$ 2 mm. longa et (cum staminodiis) flavido-viridis; ovaria depresso-globosa ad sublentiformia, 2-locularia, ovulis basifixis; stigma parvum; staminodia ovaria aequantia, clavata; inflorescentia mascula cylindracea, juvenilis $\pm$ 9 mm. longa et smaragdina, apice sensim conoidea, acutiuscula; flores masculi plerumque 3-andri, thecis sub connectivo non occultis.

The description is taken from a plant cultivated in the Buitenzorg Gardens, flowering July 1920.

Celebes (*Mt. Taloang*, Capt. L. VAN VUUREN's Exploration Expedition).

Homalomena aeneifolia, V. A. V. R.

Chamaecladon. — Herba parva, foliis nutantibus tantum usque ad 10 cm. alta, caudiculo usque ad 4 cm. longo. Foliorum petiolus 4—8 cm. longus, usque ad medium vaginatus, ceterum antice canaliculatus, lateraliter leviter longitudinaliter rugulosus, apicem versus sordide ruber, basin versus (cum vagina) coccineus; vagina relative lata, albido-marginata; lamina in vivo relative firmiter herbacea, in sicco tenuior, ovata vel ovato-oblonga, foliorum majorum $7^1/_2$—12 $\times$ $3^1/_2$—5 cm., supra in vivo nitido-velutina, in juventute obscure sordide rubra, post aeneo-viridis (rubro-viridis), postremo (marcescens) aurantiaca, subtus in juventute viridis, post obscure sordide rubra, postremo (marcescens) miniata, basi rotundata vel rotundato-truncata, apice sensim obtusiuscule acuminata, breviter, acute apiculata; costa subtus leviter, longitudinaliter rugulosa et cum venis sordide rosea ad obscure rubra; venae primariae 4—6 utrinque, subtus prominentes, ascendentes, apicem versus sursum curvae, basi in costam decurrentes; venae secundariae tertiariaeque sensim graciliores. Pedunculus $\pm$ $1^1/_2$ cm. longus, coccineus. Spatha cylindracea, $\pm$ 2 cm. longa, 3 mm. ampla, obscure sordide rubra, basi obconoidea, apice acuminata, aeneo-viridis, acumine curvato, viridi. Spadix subsessilis, $\pm$ $1^1/_2$ cm. longus; inflorescentia feminea breviter cylindracea, apice obliqua, circiter $2^1/_2$ mm. (antice 2 mm., postice 3 mm.) longa; ovaria (cum staminodiis) flavido-viridia, crasse conoideo-ovoidea vel lageniformi-globosa et apice styliformi-attenuata, 2-locularia, ovulis subbasifixis; stigma parvum; staminodia clavata, ovaria aequantia vel breviora; inflorescentia mascula cylindracea, $\pm$ $12^1/_2$ mm. longa, pallide viridis, basi obliqua, apice sensim conoidea, obtusiuscula; flores masculi 3-andri, thecis sub connectivo non occultis.

The description is taken from a living plant cultivated in the Buitenzorg Gardens, flowering July 1920.

Celebes (Capt. L. VAN VUUREN's Exploration Expedition).

Homalomena asperifolia, V. A. V. R.

Chamaecladon. — Herba relative parva, usque $12^1/_2$ cm. alta, caudiculo usque $7^1/_2$ cm. longo, $^3/_4$ cm. crasso. Foliorum petiolus quam laminae ± 2-plo brevior (nunc paullo longior, nunc paullo brevior), laevis, $^1/_3$—$^1/_2$ parte basali vaginatus, vagina viridi vel rosea; lamina subcoriacea subelliptica, ovalis, ovata vel lanceolata, longitudine $1^1/_2$—3-plo latitudinem metiens, $7^1/_2$—$12^1/_2 \times 2^1/_2$—6 cm., supra obscure viridis, verrucis subcontiguis, obtuse conicis, oculo nudo perspicuis aspera, subtus pallidior, verruculis minutis, oculo nudo non perspicuis asperula, basi rotundato-cuneata ad late rotundata vel leviter cordato-emarginata, apice rotundata vel breviter acuminata, minute apiculata; venae primariae 4—7 utrinque, cum venis secundariis subtus distincte prominentes, venis tertiariis gracillimis, immersis, erecto-patentes, inferiores in foliis latissimis subhorizontales, apicem versus sursum curvae. Pedunculi $1^1/_2$—2 cm. longi, virides vel flavido-virides. Spatha conoideo-ellipsoidea, ± $1^1/_2$—2 cm. longa, usque $^1/_2$ cm. ampla, viridis vel flavido-viridis, breviter cuspidata. Spadix subsessilis, $1^1/_4$—$1^3/_4$ cm. longus, usque ± 3 mm. crassus; inflorescentia feminea usque ± 3 mm. longa; ovaria ovoideo-conoidea (fig. g), pallide viridia, 2-locularia, ovulis ± basifixis; stigma parvum, rotundum; staminodia non vidi; inflorescentia mascula quam feminea ± 3—4-plo longior, pallide viridis vel flavida; flores masculi 3—4-andri, thecis sub connectivo non occultis (fig. d').

Fig. g.

The description is taken from living plants cultivated in the Buitenzorg Gardens, flowering December 1919 and January 1920.

Sumatra (Deli, Haboko, in forest, W. DOCTERS VAN LEEUWEN).

Homalomena Doctersii, V. A. V. R.

Chamaecladon. — Herba perparva, foliis subrosulatis. Foliorum petiolus perbrevis, 3—4 mm. longus, supra canaliculatus, usque vel fere usque ad laminam vaginatus, inter vaginam et laminam marginatus et ciliolatus; vagina apice 2-ligulato-auriculata, auriculis ciliolatis vel integerrimis (decidue ciliolatis?); lamina herbacea, obovata 2—$4^1/_2 \times 1^1/_2$—$2^1/_2$ cm., apice rotundata vel obtusa et abrupte, minutissime acuminata, margine in vivo plicis recurvatis, copiosis, regularibus, subcontiguis, falcatis specie (oculo nudo conspecta) minute denticulata, copiose albido-ciliolata (fig. h), basi plus minusve anguste rotundato-cuneata; costa subtus basin

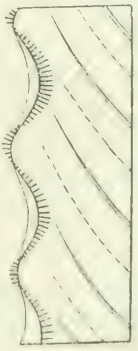


Fig. h.

versus striis breviter pilosis munita; venae primariae ± 3 utrinque, e parte inferiore costae ortae, margini parallelae, apicem versus sursum curvae, immersae, venis secundariis tertiariisque gracilioribus interpositis. Pedunculi graciles, $1^1/_2$—2 cm. longi, virides vel rubescentes, copiose breviter puberuli. Spatha angustius ad latius ovoidea, $^3/_4$—1 cm. longa, $^1/_4$—$^1/_2$ cm. ampla, viridis vel rubescenti-afflata, acuta, dorso costa decidue, breviter puberula munita. Spadix sessilis, quam spatha paullo brevior; inflorescentia feminea breviter cylindracea, 1—$1^1/_2$ mm. longa; ovaria subglobosa, viridia; stigma sessile, parvum, rotundum; staminodia . . . .; inflorescentia mascula conoideo-cylindracea, primum pallide viridis, post pallide flavida, quam inflorescentia feminea ± 4-plo longior, acutiuscula; flores masculi 2—3-andri, thecis sub connectivo non occultis.

A very distinct species. — The description is taken from a living specimen cultivated in the Buitenzorg Gardens, flowering January 1920. A non-flowering plant collected in the same locality, nearly indistinguishable from this when seen with the naked eye, differs in having the dimensions somewhat larger, the fully developed leaves somewhat reddish beneath, without hairs or ciliae, and the apex more distinctly acuminate, apiculate.

Sumatra (*Pajakombo, Harau-Ravine*, alt. ± 400 m., W. DOCTERS VAN LEEUWEN).

Homalomena polyandra, V. A. v. R.

Chamaecladon. — Caudex repens, usque ± 10 cm. longus, 2 cm. crassus, apicem versus foliatus. Foliorum petiolus $7^1/_2$—15 cm. longus, adultus basi valde crassus, nunc breviter, nunc ultra medium vaginatus, levissime verruculoso-asperulus, juvenilis pallide brunneo-roseus, apicem versus perdense et brevissime glanduloso-puberulus, postremo viridis, glabrescens, inter vaginam laminamque antice anguste canaliculatus et acute 2-marginatus; vagina perdense et brevissime puberula, mox exsiccata; lamina in vivo coriacea, lanceolata vel ovato-lanceolata, 11—22 × 3—$6^1/_2$ cm., ad vel infra medium latissima, juvenilis pallide roseo-brunnea, mox supra obscure smaragdina, maculis plus minusve copiosis, irregulariter sparsis, inaequimagnis, irregularibus, pallidius viridibus ornata, subtus subglauca, basi latius vel angustius rotundato-cuneata, margine leviter undulata, apice acuminata; costa cum venis primariis subtus perdense et brevissime glanduloso-puberula; venae primariae 12—18 utrinque, relative crassae, basi patentes vel subhorizontales, ceterum arcuato-ascendentes; venae secundariae graciliores, parce puberulae; venae tertiariae graciles. Pedunculus juvenilis $2^1/_2$ cm. longus, levissime verruculoso-asperulus, basin versus roseus, glaber, apicem versus sordide brunneus, perdense et brevissime puberulus, postremo usque $12^1/_2$ cm. longus, viridis, glabrescens. Spatha ovoideo-fusiformis, $2^1/_2$—4 cm. longa, 6—9 mm. ampla, viridis vel brunnescenti-viridis, glabra, acuta. Spadix stipite $^1/_4$ cm. longo suffultus, ellipsoideus, juvenilis $1^3/_4$ cm. longus, in medio $^1/_2$ cm. crassus, utrinque ± rotundatus, postremo usque 3 cm.

longus; inflorescentia feminea $^1/_4$ cm. longa; ovaria ovoidea, plus minusve crassa, pallide viridia, apice in stylum crassum, longius vel brevius cylindraceum attenuata, ovulis infra medium placentarum congregatis (fig. i); stigma plano-discoideum, rotundum, leviter 3—4-lobatum, perpallide viride; staminodia non vidi; inflorescentia mascula quam feminea 5—6-plo longior, juvenilis viridescenti-albida, demum . . . . . ; flores masculi 5- vel saepius 6-andri, rotundi vel 5-angulosi, saepius elongati et 6-angulosi, thecis sub connectivo non occultis (fig. i′).

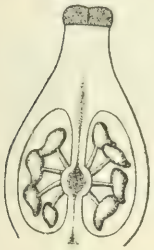


Fig. i.

Fig i′.

The description is taken from living plants cultivated in the Buitenzorg Gardens. — Habitat unknown.

Homalomena rupicola, V. A. V. R.

Chamaecladon. — Herba majuscula, ± 40 cm. alta, caudiculo usque 15 cm. longo et $^3/_4$ cm. crasso. Foliorum petiolus quam lamina paullo brevior, 10—20 cm. longus, plerumque obscure viridi-purpureus, basi breviuscule (± $^1/_6$—$^1/_3$) vaginatus; lamina in sicco firmiter herbacea, lanceolata, 12—22$^1/_2$ × 3—9 cm., vix inaequilatera, viridis, basi acuta, apice breviter et obtusiuscule acuminata, brevissime apiculata; venae primariae in foliis majoribus 9—12 utrinque, angulo acuto ascendentes, apice sursum arcuatae, venis secundariis distinctis, tertiariis quaternariisque occultis interpositis. Pedunculi 2—2$^1/_2$ cm. longi, graciles, rubro-brunnei. Spatha elongato-conoideo-fusiformis, cuspide exclusa 1$^1/_2$—1$^3/_4$ cm. longa, 3—4 mm. ampla, rubro-brunnea, acute cuspidata, cuspide H. Scortechinii Hk. f. more recurvata, plus minusve sigmoidea. Spadix subsessilis, 1—1$^1/_2$ cm. longus, in media parte ± 2 mm. crassus; inflorescentia feminea brevis, ± 2—3 mm. longa; ovaria conoideo-ovata (fig. j), pallide carnea, specie 2-locularia, ovulis apicem placentarum non attingentibus; stigma discoideum, rotundatum, quam apex ovarii latius; staminodia clavata, quam ovaria ± 2-plo breviora; inflorescentia mascula elongato-conoidea, quam feminea ± 3—4-plo longior, acutiuscula, flavido-viridis; flores masculi plerumque 3-andri, thecis sub connectivo non occultis (fig. d′).

Fig. j.

Sumatra (Deli, Sibolangit, on rocks and slopes in deep shade of primeval forest, alt. ± 450 m., J. A. LÖRZING, No. 5197, 10 July 1917).

Homalomena silvatica, V. A. V. R.

Chamaecladon. — Herba majuscula, usque ± 30 cm. alta, caudiculo usque 10 cm. longo, $^3/_4$ cm. crasso. Foliorum petiolus quam lamina nunc paullo brevior, nunc paullo longior, 7$^1/_2$—15 cm. longus, $^1/_4$—$^1/_2$ parte

basali viginatus; lamina in sicco herbacea, plerumque ovata, foliorum minorum raro lanceolata, 8—16 × 3—8 cm., basi late rotundata, raro rotundato-cuneata, imo abrupte, brevissime cuneata, apice acuta ad breviter acuminata, minute apiculata; venae primariae ± 4 — 7 utrinque, venis secundariis, tertiariis quaternariisque gracilioribus, pluribus interpositis, conspicue sursum arcuatae, basales parte inferiore patentes vel horizontales, ceterae ascendentes. Pedunculi graciles, 3—4 cm. longi. Spatha conoideo-fusiformis, ± $1^1/_2$—$1^3/_4$ cm. longa, 3 mm. ampla, acuminata, laete viridis. Spadix brevissime stipitatus, cum stipite 1—$1^1/_2$ cm. longus, usque 2 mm. crassus; inflorescentia feminea brevissima, 1—$2^1/_2$ mm. longa; ovaria conoideo-ovoidea (fig. k), 2-locularia, ovulis subbasifixis; stigma discoideum, rotundum, quam apex ovarii latius; staminodia quam ovaria ± 2-plo breviora, clavata, breviter stipitata; inflorescentia mascula elongato-cylindraceo-conoidea, quam feminea 4—8-plo longior; flores masculi 4-andri, thecis sub connectivo non occultis (fig. k').

Fig. k.

Fig. k'

Sumatra (*Deli, Upper Bandar-baroe*, in forest, alt. ± 1250 m., J. A. LÖRZING No. 4696, 3 February 1917).

Homalomena coccinea, V. A. V. R.

Chamaecladon. — Herba parva, 15—25 cm. alta, caudiculo 5—10 cm. longo, 3 mm. crasso. Foliorum petiolus quam lamina plerumque paullo brevior, $2^1/_2$—$7^1/_2$ cm. longus, purpureus vel viridis et purpureo-tinctus, supra plus minusve canaliculatus, $^1/_3$—$^1/_2$ parte basali membranaceo-vaginatus; lamina late elliptica vel elliptico-ovata, quam lata plerumque 2-plo longior, interdum pro ratione paullo longior vel brevior, 4—8 × 3—4 cm., paullo inaequilatera, altero latere $1^1/_8$—$1^1/_4$-plo latiore, supra nigro- vel purpureo-viridis, subtus sordide rubra, postremo utrinque laete coccinea, apice breviter et late acuminata, breviter et graciliter apiculata, basi late rotundata vel rotundato-cuneata, imo breviter decurrenti-cuneata; venae primariae ± 4 utrinque, ascendentes, apicem versus conspicue sursum curvae, venis secundariis, tertiariis quaternariisque sensim gracilioribus interpositis. Pedunculi 1—2 cm. longi, pallide purpureo-rosei, deorsum dense pallidius puncticulati. Spatha conoideo-fusiformis, $1^1/_4$—$1^3/_4$ cm. longa, ± 3 mm. ampla, dimidia parte basali pallide purpureo-rosea, sursum viridis et purpureo-tincta, apice acute acuminata. Spadix perbreviter stipitatus, usque ± $1^1/_4$ cm. longus; inflorescentia feminea ± $2^1/_2$ mm. longa et 2 mm. crassa; ovaria globoso-ovoidea, 2-locularia, ovulis dimidiam partem inferiorem placentae occupantibus (fig. l); stigma sessile, discoideum, rotundum, quam apex ovarii latius; staminodia quam ovaria paullo breviora,

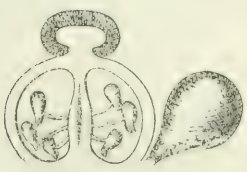


Fig. l.

crasse capitato-clavata, brevissime, graciliter stipitata; inflorescentia mascula elongato-conoideo-cylindracea, quam feminea ± 5-plo longior, $1^1/_4$ cm. longa; flores masculi 2—4-(plerumque 3-) andri, thecis sub connectivo non absconditis (fig. 1′).

Fig. 1′.

The description of the colours is taken from fresh material, flowering January 1920.

Java (Preanger Regencies, Mt. Halimoen, on weather beaten rocks along brooks in primeval forest, alt. 600 m., R. C. BAKHUIZEN VAN DEN BRINK No. 172).

Homalomena triangularis, V. A. V. R.

Euhomalomena. — Planta majuscula, ± 65—80 cm. alta, caudiculo ± 2 cm. crasso. Foliorum petiolus quam lamina ± $2—2^1/_2$-plo longior, $^1/_4—^1/_3$ parte basali vaginatus; lamina in sicco firmiter herbacea, paullo elongata, leviter cordato-triangularis, ± 20 × 10—12 cm.; lobus anticus triangularis, ± $17^1/_2$ cm. longus, apicem breviter acuminatum versus linea paullo excurva sensim angustatus; lobi postici late rotundato-triangulares, $^1/_{10}—^1/_8$ longitudinis lobi antici metientes, sinu non profundo, latissime obtusissimeque triangulari separati; venae primariae ± 8—10 utrinque, basales horizontales vel leviter deflexae, parte superiore sursum curvae, costales arcuato-ascendentes, venis secundariis tertiariisque gracilioribus interpositis. Pedunculi primum ± $7^1/_2$ cm., demum usque 30 cm. longi, deorsum carnei, sursum (cum spatha?) virides vel flavido-virides, olivaceo-striati. Spatha cylindraceo-ellipsoidea, apiculata, primum ± 7 cm. longa et 1 cm. ampla, demum usque 12 cm. longa et $1^1/_2$ cm. ampla. Spadix breviter stipitatus, primum ± $5^1/_2$ cm., demum usque 9 cm. longus; inflorescentia feminea cylindrica, primum ± $1^1/_2$ cm. longa et $^1/_2$ cm. crassa, demum major; ovaria conoideo-ovoidea (fig. m), demum obovoidea, viridia, 3-locularia; stigma sessile, discoideum, primum rotundum, demum sub-3-lobatum, radiatim 3-sulcatum; staminodia cujusque floris 1—2, pistilla ± aequantia, dimidia parte inferiore filiformia, dimidia parte superiore crassissime obconoideo-clavata, flavida; inflorescentia mascula cylindrica, flavida, primum ± 4 cm. longa et $^1/_2$ cm. crassa, demum major; antherae connectivo crasso, supra applanato, thecas occultante (fig. m′).

Fig. m.

Fig. m′.

Sumatra (*Deli, Medan*, swampy places in jungle, alt. 15 m., J. A. LÖRZING No. 4071, 27 July 1915).

Homalomena latifrons, ENGL., Pflzrch, LV (IV, 23 *Da*), Arac.-Philod.-Homal.-Schism., 54, fig. 30.

HALLIER's original Nos. 68 and 1357, on which ENGLER based this species, are distinguished from his diagnosis by the following characters: Petiole to nearly $2^1/_2 \times$ as long as the lamina, 25—$47^1/_2$ cm. long, sheathing $^1/_5$—$^1/_4$ its length; lamina broadly triangular-cordate, tending towards sagittate, $17^1/_2$—25 × 17—24 cm., with the posterior lobes $^1/_4$—$^1/_2$ as long as the central lobe; peduncles 5—$12^1/_2$ cm. long; spathe 4—$6^1/_2$ cm. long; spadix on a stalk about 5 mm. long (not hardly stalked), about as long as the spathe (including the stalk); masculine inflorescence about $1^1/_2$—2 × as long as the feminine.

A specimen from an unknown locality, cultivated in the Buitenzorg Gardens, determined bij ENGLER, is distinguished in having the ovaries very pale-green, the staminodes white, the masculine inflorescence greenish- or yellowish-white.

Homalomena paliformis, V. A. V. R.

Euhomalomena. — Foliorum petiolus quam lamina longior, usque 35 cm. longus; basi ± $^1/_3$ vaginatus; lamina in sicco relative firmiter herbacea, subcordato-triangularis, imo (in sinu) brevissime et late cuneata, ± 20—25 × 15—25 cm.; lobus anticus palae more rotundato-triangularis, ± $17^1/_2$—20 × 15—24 cm., apicem relative abrupte et breviter acuminatum versus linea excurva angustata; lobi postici triangulares, paullo extrorsi, ± $^1/_4$ longitudinis lobi antici metientes, sinu obtuso, latissime triangulari separati, apice rotundati; venae primariae ± 8—9 utrinque, subtus prominentes, venis secundariis, tertiariis, quaternariis parallelibus, gracilioribus interpositis, basales recurvatae et horizontales, apicem versus sursum curvae, costales sensim conspicue ascendentes. Pedunculi floriferi usque $12^1/_2$ cm. longi. Spatha cylindrico-ellipsoidea, viridis, $5/^1{}_2$—$6^1/_2$ cm. longa, 1—$1^1/_4$ cm. diam., apice brevissime rostrato-apiculata. Spadix stipite ± 5—6 mm. longo suffultus, spatham ± aequans; inflorescentia feminea cylindrica, ± $1^1/_4$—$1^1/_2$ cm. longa $^1/_2$ cm. crassa; ovaria cylindrico-lageniformia (fig. n), apice rotundato-conoidea, in stylum breviter cylindricum transientia; stigma discoideum, rotundum, quam stylus latius, in media parte paullo depressum; staminodia quam pistilla altiora, dimidia parte inferiore filiformia, dimidia parte superiore elongato-cuneato-clavata; inflorescentia mascula conico-cylindrica, quam feminea ± $2^1/_2$-plo longior et paullo crassior, sursum paullo attenuata; flores masculi plerumque 4-andri; antherae connectivo tenui thecas non occultante (fig. n′).

Fig. n.

Fig. n′.

Resembles at first sight H. latifrons ENGL.

Java (*Rembang, Ngawen*, in swampy places, J. BEUMÉE No. 816, May 1917; *Semarang, Manggar*, J. BEUMÉE No. 5045, 3 March 1920).

Homalomena habokoana, V. A. V. R.

Euhomalomena. — Herba majuscula, caudiculo ± $12^1/_2$ cm. alto, 1 cm. crasso. Foliorum petiolus quam lamina longior, $12^1/_2$—$22^1/_2$ cm. longus, antice leviter canaliculatus, $^1/_4$ parte basali vaginatus; vagina coriacea, persistens; lamina in vivo coriacea, subcordato-triangularis, 12—16 × 10—14 cm., supra obscure, subtus pallide viridis; lobus anticus rotundato-triangularis, apicem breviter acuminatum versus linea excurva angustata; lobi postici obtusissime triangulares, sinu latissime et obtusissime triangulari separati, $^1/_8$—$^1/_7$ longitudinis lobi antici metientes, apice late rotundati; venae primariae ± 8—9 utrinque, subtus prominentes, venis secundariis paullo prominentibus et venis tertiariis gracillimis absconditisque interpositis, basales plus minus horizontales vel paullo reversae, apicem versus sursum curvae, costales sensim ascendentes. Pedunculus 3–5 cm. longus, roseo-brunneus vel viridi-brunnescens, demum viridescens, longitudinaliter rugulosus. Spatha cylindracea, $3^1/_2$—4 cm. longa, $^3/_4$—1 cm. ampla, primum brunnea vel pallide rubro-brunnea, postremo viridescens, brunneo-afflata, basi et apice attenuata, apice cuspidato-acuminata. Spadix stipite $1^1/_2$–$2^1/_2$ mm. longo suffultus, $2^1/_2$—$3^1/_4$ cm. longus; inflorescentia feminea cylindracea, $^3/_4$—1 cm. longa, $^1/_2$—$^3/_4$ cm. crassa; ovaria conoideo-ovoidea, pallide viridia; stigma parvum, discoideum, rotundum; staminodia quam ovaria vix vel paullo breviora, dimidia parte inferiore filiformia, dimidia parte superiore clavata, albida (fig. o); inflorescentia mascula conoideo-cylindracea, quam feminea 2—$2^1/_2$-plo longior, pallide flavida, subalbida, obtusiuscula; flores masculi 3–4-andri; antherae connectivo thecas non occultante (fig. o').

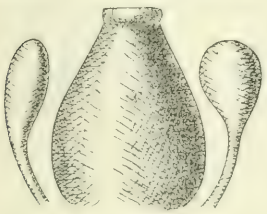


Fig. o.

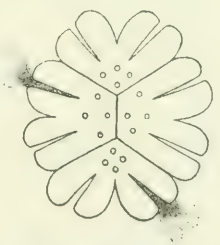


Fig. o'.

Resembles at first sight H. latifrons ENGL. The description is taken from a living plant cultivated in the Buitenzorg Gardens, flowering February 1920).

Sumatra (*Deli, Haboko*, in forest, W. DOCTERS VAN LEEUWEN).

Homalomena javanica, V. A. V. R.

Euhomalomena. — Planta majuscula, caudice usque ± 15 cm. alto, $1^1/_2$ cm. crasso. Foliorum petiolus ± 40—60 cm. longus, $^1/_4$ parte basali vaginatus; lamina ovato- vel subsagittato-cordata, ± 20—40×12—24 cm.; lobus anticus triangularis, ± 16–26 cm. longus, a basi linea extrorsum curvata apicem acute acuminatum, breviter cuspidato-apiculatum versus angustatus; lobi

postici obtuse triangulares vel semiovales, quam lobus anticus ± 3—4-plo breviores, retrorsi vel apice leviter extrorsi, sinu sat profunde triangulari separati; venae primariae ± 7—9 utrinque, venis secundariis, tertiariis quaternariisque gracilioribus interpositis, apicem versus sursum curvae, basales radiantes, costales sensim ascendentes. Pedunculus ± 10 cm. longus, demum longior (usque 20 cm). Spatha elongato-ovoideo-ellipsoidea, 5—6 cm. longa, 1 cm. ampla, demum maior, acuminata. Spadix stipite ± $^1/_3$—$^1/_2$ cm. longo suffultus, florifer ± $4^1/_2$—5 cm. longus, demum longior; inflorescentia feminea cylindracea, ± $1^1/_2$ cm. longa, in sicco $^1/_2$—1 cm. crassa; ovaria ovoideo-lageniformia (fig. p), in specimine examinato 3-locularia; stigma subsessile vel stylum brevem coronans, discoideum, specie sub-3-lobatum; staminodia altitudinem pistillorum ± aequantia, dimidia parte inferiore filiformia, in dimidiam partem superiorem elongato-clavatam sensim transiente; inflorescentia mascula elongato-conoideo-cylindracea, quam feminea ± 2—3-plo longior, ± 3—$3^1/_2$ cm. longa; flores masculi saepe 4-(interdum 3-) andri; antherae connectivo tenui thecas non occultante (fig. p').

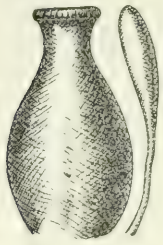


Fig. p.

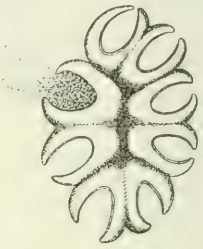


Fig. p'.

H. aromatica SCHOTT and H. cordata SCHOTT differ, according to the figures given by ENGLER in Pflzrch, LV (IV, 23 *Da*), 59—60, in having the thecae hidden under a thick connective.— The description is taken from dried specimens provided with labels not mentioning the colours.

Forma typica.— *Java* (*Preanger Regencies*, *Tjibodas*, in forest, near river side, alt. ± 1400 m., SAPII No. 117; J. A. LÖRSING No. 1716, 6 May 1914).

A plant cultivated in the Buitenzorg Gardens, flowering May-August 1920, which may be a form of this species, is distinguished by the following characters: Foliorum petiolus viridis, longitudinaliter obscurius striolatus, fere $^1/_2$ vaginatus; lamina breviter acuminata, supra saturate, subtus pallide viridis. Pedunculus colore stipitis. Spatha longior, usque ± 10 cm. longa, flavido-viridis et punctis minutis rubescentibus specie brunneo-afflata vel pallidissime viridis, apicem versus rosea, marginem versus subalba, breviter apiculato-acuminata, acumine viridi, basi brunneo. Spadix longior, usque 8 cm. longus; inflorescentia feminea usque $2^1/_2$ cm. longa; ovaria oblonga, pallide viridia; stigma sessile, perpallide viride; staminodia alba, dimidia parte superiore crasse clavata (fig. q); inflorescentia mascula usque ad $5^1/_2$ cm.

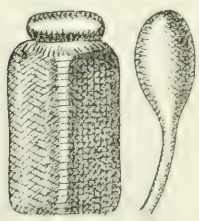


Fig. q.

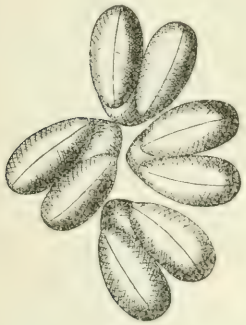


Fig. q'.

longa, primum perpallide viridi-albida, demum perpallide brunneo-flavida, subalba; flores masculi irregulariter 3—4-andri (fig. q'). (Forma aberrans). — *Borneo*.

Var. kangeanensis: Foliorum lamina basi pro ratione profundius cordata; spatha cum spadice pro ratione longior et gracilior; ovaria pro ratione breviora et crassiora; staminodia quam pistilla multo longiora, stipite supra basin conoideam fusiformi (fig. r).

Fig. r.

In forest; alt. 200—250 m. — A distinct species? Material few and incomplete.

Kangean Island (near *Java*; C. A. BACKER No. 27477, 23 March 1919).

Homalomena discolor, V. A. v. R.

Euhomalomena. — Herba majuscula, caudiculo usque ± $7^1/_2$ cm. longo et 1 cm. crasso. Foliorum petiolus ± 20 — 25 cm. longus, viridis, antice plus minusve canaliculatus, parte basali usque ad medium (vel longius aut brevius) vaginatus; vagina herbacea; lamina herbacea, ovato- vel subsagittato-cordata, ± 15—20 × 10—15 cm., imo (in sinu) late et brevissime cuneata; lobus anticus late triangularis, $12^1/_2$ — 15 cm. longus, a basi apicem subabrupte et acute acuminatum, breviter cuspidato-apiculatum versus linea extrorsum curvata angustata; lobi postici obtuse triangulares vel semiovales, quam lobus anticus 5-plo breviores, sinu obtuse triangulari separati, retrorsi vel apice leviter extrorsi; venae primariae ± 8—12 utrinque, venis secundariis, tertiariis quaternariisque sensim gracilioribus interpositis, basales partim recurvatae, partim horizontales, apicem versus sursum curvae, costales sensim ascendentes. Cataphylla alba, 2-carinato-cristata, cristis roseis. Pedunculi 5—$12^1/_2$ cm. longi, primum pallide virides, demum obscuriores, hic illic pallide rubro-maculati. Spatha elongato-ovoidea, 5—7 cm. longa, 1—2 cm. ampla, breviter et acute acuminata, perpallide viridis, albida, hic illic (praesertim in dimidia parte superiore) rubescenti-afflata et -maculata, acumine rubro. Spadix stipite $^1/_4$—$^1/_2$ cm. longo suffultus, 4—$6^1/_2$ cm. longus; inflorescentia feminea cylindrica, $1^3/_4$—$2^1/_2$ cm. longa, $^3/_4$ cm. crassa; ovaria subobpyramidata, parte inferiore obtuse angulosa, apice conoidea (fig. s), pallide viridia, 3-locularia; stigma sessile, discoideum, rotundum, latitudine apicem ovarii aequans, leviter 3-lobatum, perpallide viride, albidum; staminodia altitudinem pistillorum aequantia vel subaequantia,

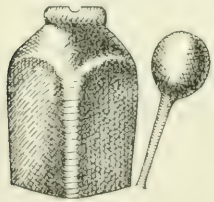


Fig. s.

eburnea, crasse capitatum, longius et graciliter stipitatum, stipite quam apice $1^1/_2$-plo longiore; inflorescentia mascula conoideo-cylindracea, quam feminea $1^1/_4$—2-plo longior, 3—$3^1/_2$ cm. longa, eburnea, apicem obtusiusculum versus sensim attenuata; flores masculi 2- vel saepius 3—4-andri; antherae connectivo crasso thecas non occultante (fig. s').

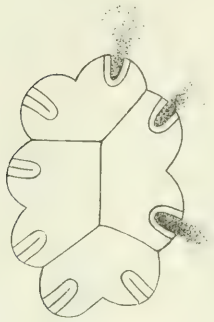


Fig. s'.

The description is taken from fresh material, flowering December 1919).

Java (*Buitenzorg, Tjampea*, in secondary forest, alt. 300 m., D. F. VAN SLOOTEN No. 245).

Homalomena bancana, V. A. V. R.

Euhomalomena. — Herba majuscula caudice usque $17^1/_2$ cm. longo et $1^1/_2$ cm. crasso. Foliorum petiolus quam lamina $\pm$ $1^1/_2$—2-plo longior, 30—45 cm. longus, $^1/_8$—$^1/_4$ parte basali vaginatus; vagina a basi lata sursum angustata; lamina in sicco firmiter herbacea et brunnea, subsagittato-triangularis, imo (in sinu) brevissime et late cuneata, $17^1/_2$—30×15—20 cm.; lobus anticus triangularis, $15-22^1/_2 \times 10-15$ cm., basi linea incurva in lobos anticos transiens, apicem versus linea paullo excurva angustatus, apice acute et anguste acuminatus, tubuliformi-apiculatus; lobi postici triangulares, saepe distincte extrorsi vel excurvi, $^2/_5$—$^1/_3$ longitudinis lobi antici metientes, apice rotundati, sinu obtuso, late triangulari separati; venae primariae $\pm$ 8—10 utrinque, crassiusculae, venis secundariis, tertiariis quaternariisque gracilioribus interpositis, basales recurvatae et horizontales, parte apicali sursum curvae, costales sensim ascendentes. Pedunculi $7^1/_2$—10 cm. longi. Spatha elongato-ovoidea vel -ellipsoidea, 4—8 cm. longa, primum $\pm$ $1^1/_2$ (postremo usque $2^1/_2$) cm. ampla, acuta vel apiculata. Spadix breviter stipitatus, florifer quam spatha paullo brevior; inflorescentia feminea cylindrica, $\pm$ $1^1/_2$—2 cm. longa, primum $^1/_2$—$^3/_4$ (fructifera usque $\pm$ $1^1/_2$—$1^3/_4$) cm. crassa; ovaria conoideo-ovoidea, obscure puncticulata, in specimine examinato 3-locularia (Fig. t); stigma sessile, discoideum, rotundum, latitudinem apicis ovarii metiens; staminodia parte basali filiformia, parte apicali obconoideo-clavata, altitudinem pistillorum plus minus aequantia; inflorescentia muscala conoideo-cylindracea, longitudinem femineae $1^1/_2$—2-plo metiens; flores masculi sublaxi, plerumque 4-andri; ahtherae breves, latae, thecis sub connectivo crasso, supra leviter verruculoso absconditis

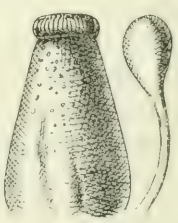
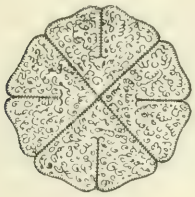


Fig. t.



(fig. t′); baccae obconoideo-obovoideae, 6-angulosae, apice rotundatae.

Near H. pontederiifolia GRIFF. wich differs in having the lamina blackish when dry, with the basal lobes much shorter, $^1/_7$—$^1/_6$ the length of the antical lobe. — In forest, along road- and river-sides; alt. 30—300 m.

Fig. t′.

Bangka (H. A. B. BÜNNEMEIJER, *Mt. Benoembing* No. 1439, type, 12 October 1917; *Bindik* No. 2337, 9 December 1917); *Pulo Lepar* (H. A. B. BÜNNEMEIJER No. 2422, 12 December 1917).

Homalomena rubra, HASSK., in HOEV. & DE VR., Tijdschr., IX, 162; ENGL., in Pflzrch, LV (IV, 23 *Da*), Arac.-Philod.-Homal.-Schism., 63; *H. rubescens,* MIQ. (not KNTH), Flor. Ned. Ind., III, 212.

Specimens gathered in *Batavia* by C. A. BACKER and others cultivated in K. HEYNE's garden in *Buitenzorg* are distinguished in having the petiole to about 75 cm. long, dark-purple, the lamina to $47^1/_2 \times 35$ cm., the spathe to $8^1/_2$—9 cm. long, purple, the spadix to 9—10 cm. long, on a stalk about $^1/_2$ cm. long, the ovaries oblong-ellipsoidal, yellow-green with a purple apex, the staminodes obconoid-clavate, ivory-white, long-stalked, the masculine inflorescence about twice as long as the feminine, $^1/_2$ cm. thick. — A specimen gathered in *Tjibeber* by W. F. WINCKEL at an altitude of 1000 m. differs in having the different dimensions smaller.

A plant gathered in *Sumatra (Deli, Sibolangit,* J. A. LÖRZING No. 5324, 10 October 1917), which may be a form of this species, is distinguished in having the caudex to 1 m. high, the leaves with the lamina deeply cordate at the base, with the basal lobes nearly half as long as the antical lobe, the spathe smaller than in the type, pale-red, the spadix about 5—6 cm. long, with the masculine inflorescence about $1^1/_2 \times$ as long as the feminine.— All the portions of this specimen are said to be awfuliy stinking; the young leaves and the cataphylla are bright-pale-red.

Homalomena alba, HASSK., Catal. Bog., 57; ENGL., Pflzrch, LV (IV, 23 *Da*), Arac.-Philod.-Homal.-Schism., 63.

A specimen gathered bij C. A. BACKER near *Batavia* is distinguished in having the lamina large, 60×45 cm., the spathe $9-9^1/_2$ cm. long, greenish-white, the spadix $9^1/_2$—10 cm. long, on a stalk $\pm$ 5 mm. long, the feminine inflorescence cylindrical, $2^3/_4$ cm. long, the ovaries more or less oval, yellow-white, the staminodes obconical-clavate, very thick, long-stalked, the masculine inflorescence about twice as long as the feminine. — This is perhaps hardly more than a form or variety of the preceding. In dried state BACKER's specimens of both species are not distinguishable rfom each other.

Homalomena cordata (HOUTT.), SCHOTT, Melet., I, 20; ENGL., Pflzrch, LV (IV, 23 *Da*), Arac.-Philod.-Homal.-Schism., 57, fig. 35; *Dracontium cordatum*, HOUTT., Handl., XI, 200, tab. LXXI, fig. 2.

VERSTEEG's No. 1072 from *New Guinea*, referred by ENGLER to this species, is distinguished from ENGLER's diagnosis and figure in having the petiole sheathing $^1/_7$ its length, the peduncle 4 times as long as the spathe, the spathe white, the spadix slender, at best 3 mm. thick, the ovaries cylindrical, the staminodes obconical-clavate in the upper half, rather truncate at the apex.

ENGLER gives no detail figure of the masculine flowers. Two specimens from *Java* (*Batavia*, probably cultivated) and the *Moluccas* (*Amboina*, BOERLAGE No. 360), both determined by ENGLER, have the stamens as in fig. 35 *D* (upper portion), i. e. with a thick, angular connective covering the thecae.

Homalomena gigantea, ENGL., Pflzrch, LV (IV, 23 *Da*), Arac-Philod.-Homal.-Schism., 62, fig. 37—38.

This Bornean species has been founded on 2 specimens cultivated in the Buitenzorg Gardens under Nos. 34 and 103. — No. 34, from *Borneo*, after which fig. 38 has probably been taken, is now dead. — No. 103, from an unknown habitat, does not agree with the diagnosis and the fig. 38 quoted above; it is distinguished by the following characters: Fully developed (but not too old) leaves with the petiole to 75 cm. long, green, with copious relatively short, fine, longitudinal, purplish streaks, sheating $\pm$ $^1/_4$ its length, the sheath red-margined, becoming green towards the line of attachment; lamina $\pm$ $27^1/_2$—$45 \times 17^1/_2$—30 cm., narrowly pale-red-margined, with the basal lobes not or hardly extrorse (as in H. aromatica SCHOTT, ENGL., l. c., fig. 36, highest leaf), the primary veins $\pm$ 7—9 on, a side (including the basal ones); spadix 8—9 cm. long when flowering larger when fruiting; staminodes with the apex obconical-clavate.

Homalomena Treubii, ENGL., Pflzrch, LV (IV, 23 *Da*), Arac.-Philod.-Homal-Schism., 70.

HALLIER's original No. 2622, on which ENGLER based this species, is distinguished by the following characters not mentioned in the diagnosis: Lamina relatively suddenly acutely acuminate and apiculate; primary veins distinctly stouter than de secundary and tertiary ones; peduncle more than $7^1/_2$—10 cm. long; spathe with the tube ovoideo-ellipsoidal, the lamina conoideo-cylindrical, 5—7 cm. long, $^1/_2$—$^3/_4$ diam., subulate-acuminate.

Fig. u.

ENGLER gives no figure of this species. Regarding the spadix he writes „inflorescentia feminea staminodiis destituta". I have examined a young

spadix of the original specimen on which ENGLER based this species and I have found that each pistil was provided with stalked, very thick, obconical staminode (fig. u); the masculine flowers are 4—6-angular, consisting mostly of 4 stamens with a thick connective hiding the thecae (fig. u′).

Fig. u′.

Homalomena Nieuwenhuisii, ENGL., MS. in Herb. Bog.; *H. Wigmanii,* ENGL., in Hort. Bog.

Euhomalomena. — Herba relative parva. Foliorum petiolus 10—12$^1/_2$ cm. longus, ruber, ± usque ad mediam partem vaginatus; vagina rubra; lamina in sicco herbacea, in vivo supra obscure vel laete viridis, rubro-iridescens, subtus sordide rubra vel viridis et rubra, oblonga, 15—22$^1/_2$ × 7$^1/_2$—12 cm., inaequilatera, latere altero margine subrecta et costae parallela, latere altero margine late rotundata, basi truncata vel leviter emarginata, imo brevissime cuneata, apice rotundato-triangularis et subabrupte acuminata, minute et graciliter apiculata; venae primariae 5—7 utrinque, apicem versus valde sursum curvae et margini parallelae, basi decurrentes, venis secundariis, tertiariis et quaternariis numerosis interpositis, basales parte inferiore horizontales vel patentes, costales ascendentes. Cataphylla . . . . . Pedunculi rubri, 7$^1/_2$—10 cm. longi. Spatha 5—8 cm. longa, viridulo-alba, primum convoluta, postremo apice antice aperta; tubus ellipsoideus, ± 1 cm. amplus, demum amplior; lamina cylindrica vel conoideo-cylindrica, longitudine tubum aequante, ± $^1/_2$ cm. ampla, demum amplior, acuminata. Spadix stipite incluso 4—7 cm. longus, floribus omnibus arcte contiguis; inflorescentia feminea cylindrica, 1$^1/_2$—2$^1/_2$ cm. longa, usque 6 mm. crassa, pallide viridis; ovaria breviter cylindrica (fig. v), apice truncato-rotundata, in specimine examinato 3-locularia; stigma discoideum, rotundum, crassum, latitudinem ovarii aequans; staminodia . . . . . ; inflorescentia mascula quam feminea ± 1$^1/_4$-plo longior, 2$^1/_4$—3$^1/_2$ cm. longa, usque 4 mm. crassa, pallide flavido-grisea, a feminea parte neutrali, brevissime conoideo-cylindrica vel cylindrica, alba, floribus sterilibus formata, usque 4—6 mm. crassa separata; flores masculi 3—5-andri; stamina connectivo crasso thecas occultante (fig. v′).

Fig. v.

Fig. v′.

In the four spadices examined I could not find any trace of a staminode. — I can nowhere find a diagnosis of this species which up till now has been cultivated in the Buitenzorg Gardens under the name of *H. Wigmanii* ENGL. — Dried material of the very

same plant, however, occurring in the Buitenzorg Herbarium, is provided with a label bearing a name dedicated to the discoverer of the plant, written by ENGLER himself. The description of the habit and dimensions is taken partly from the dried material, partly from recently gathered alcohol material, of the colours partly from the living plant, partly from a water-colour by the late J. W. HUIJSMANS.

Borneo (NIEUWENHUIJS No. 1882).

Homalomena subemarginata, V. A. V. R.; *H. aromatica*, ENGL. (non SCHOTT), MS. in Hort. Bog.

Euhomalomena. — Caudex usque ± 25 cm. longus. Foliorum petiolus quam lamina paullo longior vel brevior, 15—25 cm. longus, viridis, basi ad $^1/_3$—$^1/_2$ partem vaginatus, antice apicem versus leviter applanatus; vagina persistens, margine brunneo-scarioso, deciduo; lamina late ovata, $17^1/_2$—20 × $12^1/_2$—$17^1/_2$ cm., supra saturate viridis, subtus pallide viridis, apicem breviter acuminatum versus linea excurva angustata, basi truncata vel potius leviter cordato-emarginata; venae primariae utrinque 8—10 (plerumque 9), subtus prominentes, apicem versus sursum curvae, basales horizontales, costales sensim ascendentes; venae secundariae tertiariaeque graciles. Pedunculus 7—8 cm. longus, viridis. Spatha ± 7 cm. longa; tubus leviter oblique ellipsoideus, $3^1/_2$ cm. longus, $1^1/_2$ cm. amplus, viridis; lamina convoluta conoideo-cylindracea, $3^1/_2$ cm. longa, $^3/_4$ cm. ampla, demum antice oblique aperta, viridi-flavida, breviter acuminata vel acuta. Spadix stipite $^1/_4$—$^1/_2$ cm. longo suffultus; inflorescentia feminea cylindracea, 2—$2^1/_2$ cm. longa, $^3/_4$ cm. crassa; ovaria oblonga, primum pallide viridia, demum pallide brunneo-flavida, 3-locularia, multi-ovulata; stigma sessile, crasse discoideum, latum, primum pallide brunneo-griseum, demum brunneo-flavidum; staminodia adsunt, pistilla aequantia, crasse capitata, alba, graciliter stipitata; inflorescentia mascula a feminea interstitio $^1/_4$ cm. longo, organis neutris, paucis, subsessilibus, crasse capitato-clavatis, albis vel sordide albis sparse obsesso separata; inflorescentia mascula conoideo-cylindracea, $3^1/_2$ cm. longa, basi $^1/_2$ cm. crassa, pallide grisea vel sordide albida, apice subacuta; flores masculi 3—4-andri; antherae thecis sub connectivo crasso, apice truncato absconditis.

Near H. schismatoglottoides ENGL. — The description is taken from a living specimen cultivated in the Buitenzorg Gardens, flowering May 1920.

Habitat unknown, probably Malayan.

Homalomena Miqueliana, SCHOTT, in Ann. Mus. Bot. L. B., I, 120; ENGL., Pflzrch, LV (IV, 23 *Da*), Arac.-Philod.-Homal.-Schism., 69, fig. 44.

HALLER's No. 1465, mentioned by ENGLER, differs from the diagnosis given in having the lamina oblanceolate, 25—40 × 4—8, broadest above the middle, the base sometimes acute, generally broadly rotundate-cuneate, suddenly shortly acuminate, the peduncle to 25 cm. long. — Figure 44 is incorrect.

Homalomena propinqua, SCHOTT, in Ann. Mus. Bot. L. B., I, 280; ENGL., Pflzrch, LV (IV, 23 *Da*), Arac.-Philod.-Homal.-Schism., 72, fig. 47; *H. subtriangularis*, ENGL. (includ. *var. major*, ENGL.), MS. in Herb. Bog.

HALLIER's No. 1356 (*H. subtriangularis*, ENGL., *var. major*), mentioned in ENGLER's monograph quoted above, differs from the diagnosis given in having the petiole 10—25 cm. long, sheathing $^1/_3$ to nearly $^1/_2$ its length, the lamina 10—20 × 5—7$^1/_2$ cm., triangular-subhastate to -subsagittate; the staminodes, wich are very caducous and only obtectable in very young material, have the filiform basal portion shorter, the much thickened apical portion consequently larger, globose to obconical-clavate; the stamens have the anthers not close the apex of the connective but close to the base, with a more or less narrow nudate space between their apex and the apex of the connective (fig. w.).

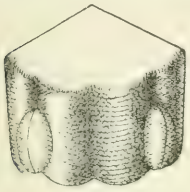


Fig. w.

HALLIER's No. 1391 (*H. subtriangularis*, ENGL.), not mentioned by ENGLER, is a smaller form of this, approaching H. paludosa HK. F. — A specimen from *Java (Buitenzorg, Tjampea*, PAIDAN), cultivated in the Buitenzorg Gardens, differs in having the lamina commonly truly sagittate, sometimes subhastate, rarely triangular-cordate, mostly twice as long as broad, sometimes proportionally shorter and broader, with the thecae separated from the apex of the connective by a broad nudate space. (fig. w.').

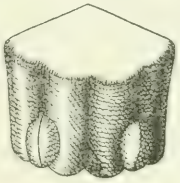


Fig. w'.

A specimen gathered in *Java* (*Mt. Tjipoetih*, near *Buitenzorg*) by R. C. BAKHUIZEN VAN DEN BRINK, is distinguished in having the leaves with petiole to 80 cm. long, the lamina to 45 × 30 cm., and the peduncle to 20 cm. long.

Homalomena Raapii, ENGL., Pflzrch, LV (IV, 23 *Da*), Arac.-Philod-Homal.-Schism., 73, fig. 49.

RAAP's No. 235, occurring in the Buitenzorg Herbarium, on which ENGLER based his original diagnosis, has the staminodes very thick-obconical-clavate on a slender stalk not much longer than the apical portion. — ENGLER says and draws „Staminodia filiformia, apice paullum incrassata", but in reality the apex of the staminodes is so much thickened that, when seen under the lens by 60 times magnifying power, it rivals the dimensions of a billiard-ball crowning a darning-needle.

Homalomena sagittifolia, JUNGH., in Herb. Lugd. Bat. ex SCHOTT, Prod., 311; HK. F., Flor. Brit. Ind., VI, 531; ENGL., Pflzrch, LV (IV, 23 *Da*), Arac.-Philod.-Homal.-Schism., 73, fig. 48.

Var. sumatrana: Dimensiones omnes minores; foliorum petiolus $22^1/_2$—$27^1/_2$ cm. longus, usque ad $^1/_2$ longitudinis vel ultra vaginatus; lamina 12—20 × 6—12 cm.; venae primariae 7—9 utrinque; pedunculi $7^1/_2$—10 cm. longi; spatha quam spadix paullo longior vel paullo brevior et angustior; staminodia apice crasse capitato-clavata.

The colour of the spathe is not mentioned on the field label but it is (according to the collector's information) probably green. — In forest; alt. 600—1000 m.

Sumatra (H. A. B. BÜNNEMEIJER, *Ophir, Taloe* No. 129, 10 April 1917 *Loeboeq Sikaping, Boekit Kaboeng* No. 1220, 22 June 1917).

Philodendron gloriosum, ANDRÉ, in Ill. Hort., 194, tab. 262; ENGL. & KRAUSE, in Pflzrch, LV (IV, 23 *Db*), Arac.-Philod.-Phil., 104.

Plants cultivated in the Buitenzorg and Tjibodas Gardens under the name of Ph. gloriosum ANDRÉ and *Ph. imperiale* SCHOTT are quite indentic; they have the caudex and leaves agreeing very well with the incomplete diagnosis of this species given by ENGLER and KRAUSE. Specimens of both gardens, having flowered August 1920, prove that this species belongs to the section Polyspermium and are distinguished as follows: Caudex relatively short-creeping, with the internodes subsemiterete, i. e. rounded on the lower side, nearly flattened (slightly convex) and subacutely 2-marginate on the upper side, 3—6 cm. long, $1^1/_2$—3 cm. thick, green, with the cataphylla red or rosy when young, not keeled. Leaves with the petiole 20—80 cm. long, subterete in the lower part, subsemiterete and acutely 2-marginate in the upper part, when young pale-green, reddish at the apex, at length dark-green, provided with very copious fine, short, interrupted, slightly elevated, longitudinal, pale-green (nearly white) stripes; lamina firm-herbaceous, cordate-ovate, 15—50 × $12^1/_2$—35 cm., narrowly red- or rosy-margined, the upper surface when young emerald-green, at length saturate-green, opaque-velutinous, copiously pale-punctulate especially along the reddish marginal stripe, the under surface when young pale-rosy-green, at length emerald-green, the antical lobe subdeltoid, to 35 × 35 cm., narrowed from the base with an extrorsely curved line towards the very shortly acuminate apex, the postical lobes subsemiorbicular or subsemireniform, to 15 × $17^1/_2$ cm., with the inner edges whether or not slightly imbricating, separated at the base by an acute sinus; costa and primary veins above when young pale-rosy, at length pale-green, with numerous much paler, very short, longitudinal stripes, beneath very prominent, when young rosy, at length olive-green; primary veins 6—10 on a side, upcurved towards the apex, the costal ones spreading, the basal ones radiating, shortly connected and not or hardly denudate at the base; secondary, tertiary and quaternary veins oblique to the primary ones, much finer, rather dark, when young rosy, at length green. Peduncle terete, ± $17^1/_2$ cm. long, 1 — $1^1/_2$ cm. thick, green or red-green, provided with many elevated, relatively

stout, short, longitudinal, white or pale-rosy stripes, especially towards and at the carmine-red, obconically thickened apex. Spathe convolute; tube obliquely oblong, 5—6 cm. long by $2^1/_2$—3 cm. diam., emerald-green, olivaceous or red-green, red-margined, provided with copious very short, longitudinal, partly pale-green, partly pale-rosy stripes; lamina ellipsoidal-oblong, 8—10 cm. long by ± 3 cm. diam. at the middle, narrowed towards the truncate base and the rather suddenly, shortly acuminate apex, rosy, carmine or purple, red-margined, copiously and very shortly rosy-striolate. Spadix on a thick, oblique stalk about 3 mm. long; feminine inflorescence cylindrical, straight or slightly curved, $2^1/_2$—3 cm. long, $1^1/_2$—2 cm. thick, oblique at the base; ovaries subprismatical, 4—6-angular, very pale-green, rounded at the apex, 4(-6?)-locular, with numerous ovules arranged in each loculus in 2 central, longitudinal rows; stigma sessile, discoid, obtusely 4—6-angular, slightly 4—6-lobed, very pale-green or pale-rosy; masculine inflorescence conoid-fusiform from a slightly truncate-conoid, sterile base; sterile portion ± 2 cm. long, 2 cm. thick at the base, $1^1/_2$ cm. thick at the apex, provided with 2—3 contiguous, broad, transversal rows of crowded, shortly subprismatical-obpyramidal, white or rosy, truncate staminodes; fertile portion ± $8^1/_2$ cm. long, $1^3/_4$ cm. thick at the middle, narrowed towards both ends, pale-green-yellow or milk- or ivory-white, the base passing gradually into the sterile portion, the apex blunt or subacute; masculine flowers 4—8-androus; stamens prismatical, about $2^1/_2$ × as long as thick, truncate at the apex, the thecae hidden under the thick connective.

Piptospatha angustifolia, ENGL., MS. in Herb. Bog.

Herba parvula, usque 25 cm. alta, caudiculo brevi, usque ± 2 cm. longo. Foliorum petiolus quam lamina brevior, 5—11 cm. longus, antice latiuscule canaliculatus; lamina rigide coriacea, glabra, lanceolata, 8—14 × $1^1/_2$—$2^1/_2$ cm. vel forsitan longior (in omnibus foliis speciminis pars apicalis laminae brevius vel longius rupta), margine anguste recurvata, basi acuta, subdecurrens; venae primariae ut videtur paucae (± 5 utrinque?), conspicue ascendentes, indistinctae, gracillimae, subtus vix prominentes; venae secundariae absconditae. Pedunculus gracilis, 15—20 cm longus. Spathae pars basalis persistens late obconoidea, ± $1^1/_3$ cm. longa; lamina..... Spadix cylindraceus, parte basali stipitiformi (rachis organis neutris caducis denudata?), ± $^1/_2$ cm. longa, ceterum ± $2^1/_4$ cm. longus, 4 mm. crassus; inflorescentia feminea brevis, ± $^1/_2$ cm. longa; ovaria breviter oblonga, apice truncata, obtuse angulosa, stigmate parvulo, sessili, discoideo, rotundato coronata; ovula 6—12—18, basilaria, erecta; inflorescentia mascula quam feminea ± 3-plo longior, obtusa; antherae basem staminorum non attingentes, apice truncatae, connectivo thecas non superante.

The description is taken from a specimen determined by ENGLER, of which, however, I could not find the diagnosis.

Borneo (HALLIER No. 614).

Piptospatha marginata (ENGL.), N. E. BR., in Curt. Bot. Mag., LI, in descr. ad tab. 7410; ENGL., in Pflzrch, LV (IV, 23 *Da*), Arac.-Philod.-Homal.-Schismat., 125; *Rhynchopyle marginata*, ENGL., in BECC., Mal., I, 288, tab. XXIII, fig. 1—2; *Schismatoglottis marginata*, ENGL., in Bull. Soc. Tosc. di Ort., 298 (oldest name).

TEYSMANN's No. 16705 from *Lingga* (not *Liangga*) and No. 11540 from *Borneo*, referred both by ENGLER to this species, do not agree with the description given by ENGLER in Pflanzenreich. — No. 16705, consisting of 3 specimens, resembles too much TEYSMANN's No. 11538 from *Borneo*, referred by ENGLER to P. elongata N. E. BR. The plants have the leaves with the petiole distinctly shorter than the lamina; the flower is still too young and has the spadix clavate but in the said young state it was not difficult to me to settle that the ovaries are *pluri*-ovulate, i.e. with 16—20 ovules arranged along 2 opposite parietal placentae. According to ENGLER's diagnosis quoted, P. marginata has the leaves with the petiole distinctly longer than (to twice as long as) the lamina, and the ovaries are described as being but 2-ovulate. — No. 11540 is an undeterminable small plant having the leaves with the lamina 5—8 cm. long on a petiole 3—4 cm. long; the ripe spadix has the berries *pluri*-spermous.

Raphidophora ternatensis, V. A. V. R.

Planta usque ± 8 m. alte scandens, ramosa, ramis pendulis; rami floriferi ± $^1/_2$ cm. crassi, in sicco longitudinaliter rugulosi, internodiis 1—2 cm. longis. Foliorum petiolus in sicco pro ratione gracilis, $7^1/_2$—10 cm. longus, antice canaliculatus, nunc usque ad laminam, nunc haud ultra geniculum vaginatus; vagina membranacea, mox exsiccata, dilacerata, caduca; lamina coriacea, in sicco flaccida, lanceolata vel ovato-lanceolata, 20—30 × 6—7 cm., levissime falcato-curvata, ad vel infra medium latissima, paullo inaequilatera, latere altero ± $1^1/_4$-plo latiore, supra obscure viridis, copiose minute albido-puncticulata, basi rotundato-cuneata, acuta, apice leviter falcata, acuminata, acute apiculata; venae laterales primariae copiosae, graciles, quam secundariae tantum paullo crassiores, ascendentes, basi patentes, apicem versus sursum curvatae; venae tertiariae gracillimae. Pedunculus ± 9 cm. longus, cataphyllo mox marcescente, dilacerato, deciduo cinctus. Spatha conoideo-cylindracea, ± $12^1/_2$ cm. longa, convoluta 1 cm. ampla, apicem versus sensim longe acuminata. Spadix stipite ± 6 mm. longo suffultus, conoideo-cylindraceus, ± $7^1/_2$ cm. longus, $^3/_4$ cm. crassus, apicem subacutum versus sensim attenuatus; overia prismatica, ± 2 mm. alta, apice applanata, 1 mm. lata, 4—6-angulosa, levissime rugulosa; ovula multa; stylus angustus, brevissime cylindraceus, interdum subconoideus; stigma parvulum, rotundatum vel suboblongum.

Ternate Island (*Akè Bobotja*, in ravine, alt. 20 m., V. M. A. BEGUIN No. 1004, 20 October 1920; Malay name: koki).

Forma major: Dimensiones fere omnes majores. Foliorum petiolus usque $12^1/_2$ cm. longus; lamina oblonga, ± 20—22 × $8^1/_2$—$9^1/_2$ cm., basi

latius rotundato-cuneata, apice sensim ad abrupte breviter acuminata. Pedunculus usque 12 cm. longus. Spatha usque 22 cm. longa, $1^1/_2$ cm ampla, apice sensim ad abrupte acuminata. Spadix stipite usque 2 cm. longo suffultus, usque 15 cm. longus et 1 mm. crassus; ovaria paullo longiora. — *Ternate Island* (V. M. A. BEGUIN No. 1141; Malay name: koki - Perhaps a more developed form of No. 1004 only).

Raphidophora octovulata, V. A. V. R.

Planta suffruticosa, florifera fructiferaque in juventute erecta vel e basi decumbente, radicante ascendens, ± 50 cm. alta, postremo forsitan scandens, caudice ± 2 cm. crasso, internodiis inferioribus ± $2^1/_2$ cm., superioribus ± 1 cm. longis. Foliorum petiolus 10—15 cm. longus, ultra medium vaginatus, antice apicem versus canaliculatus; vagina in vivo coriacea, in sicco herbacea, interdum geniculum ± $^3/_4$—1 cm. longum fere attingens, persistens; lamina in vivo coriacea, viridis, subtus quam supra pallidior, in sicco subcoriacea, lanceolata, 12—21 × 3—$6^1/_2$ cm., ad, supra vel infra medium latissima, utrinque angustata et acuta vel plus minusve acuminata, breviter et graciliter apiculata; costa glabra, subtus prominens; venae primariae numerosae, cum venis secundariis paullo gracilioribus regulariter alternantes, in vivo absconditae, in sicco subtus paullo prominentes, venis tertiariis gracilioribus interpositis, ascendentes, basi decurrentes, apicem versus sursum curvae. Pedunculi elongati, 20—$22^1/_2$ cm. longi, teretes. Spatha juvenilis acuminato-fusiformis, arcte convoluta, viridis, demum aperta et latissime navicularis, quam longa latior, antice conspecta transverse ovalis, ± $4^1/_2$ cm. longa et $6^1/_2$ cm. lata, breviter apiculata, intus albida, extus pallide viridis, marginem versus pallescens, albescens, mox decidens. Spadix stipite ± $^1/_2$ cm. longo suffultus, subcylindraceus, florifer ± 5 cm. longus et 9 mm. crassus, apicem sterilem obtusum et basin versus paullo attenuatus, pallide citrinus, fructifer ± $6^1/_2$ cm. longus et $1^3/_4$ cm. crassus, apice sterili non incrassatus, aurantiacus; ovaria subobpyramidata, ± 3 mm. alta, deorsum lateraliter compressa, apice subtruncata, 6-angulosa, ± 3 mm. crassa, lamellis 2 angustis, longitudinalibus, oppositis, in placentam basilarem continuatis imperfecte 2-locularia (fig. x); ovula 8, basilaria, 2-seriata; stigma parvum, rotundatum, breviter oblongum, vix elevatum, sordide album, mox fuscescens; baccae ovariis similes sed majores; semina 8, oblonga, recta, albuminosa (fig. x′); embryo rectus.

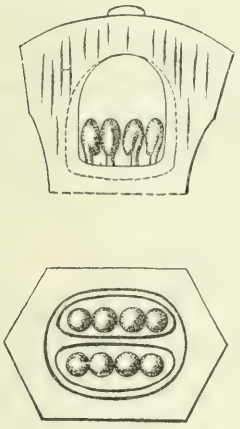


Fig. x.

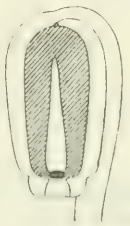


Fig. x′.

The stamens are placed on opposite sides of the ovaries so as to form conspicuously flexuose, ascending,

white spirals round about the just flowering spadix. — The description is taken from a living specimen cultivated in the Buitenzorg Gardens, flowering and fruiting December 1919 and January 1920.

Habitat unknown.

Raphidophora pilosula, V. A. V. R., this Bull, I[5], *1920*, 386.

Scandent. Petiole with the knee flattened, slightly canaliculate and narrowly 2-cristate on the anterior side; lamina above emerald-green, beneath paler, when young glaucous, when dry slightly asperulous by numerous very minute and densely crowded points, except on the primary veins; costa beneath when fresh apparently smooth, when dry apparently provided among the hairs with a very thin layer of tomentum.[1])

The specimen on which I founded this species has originally been cultivated in the Buitenzorg Gardens under the name of R. oblongifolia SCHOTT, which, according to the diagnosis given by ENGLER and KRAUSE, is distinguished also in having the spadix provided with a stalk about 1 cm. long, whilst in this species the spadix is sessile. — ENGLER and KRAUSE's fig. 10 *C* (Pflzrch, XXXVII, IV 23 *B*), however, shows (erroneously?) a sessile spadix.

A fruiting plant gathered in *Sumatra* (*Deli, Bandar-baroe*, J. A. LÖRZING No. 5913, 11 August. 1918, primeval forest, alt. ± 1000 m.) agrees very well with this species. It is distinguished in having the caudex climbing to ± 15 m. high, the petiole and lamina of the fully developed leaves longer, to 35 cm long, the base somewhat more acute, the primary veins more numerous, 20—30 on a side, the fructiferous spadix 12—14 cm. long, 2 cm. thick, apparently stalked (i.e. the spiral-shaped line of insertion of the base of the spathe is rather open), the berries pauci (± 2—6)-spermous.

Raphidophora Hallieri, V. A. V. R. this Bull., I[5], *1920*, 385.

The leaves of this species agree nearly exactly with those of LÖRZING's Sumatran plant mentioned under R. pilosula V. A. V. R. but I could not find a single hair in the costal pseudo-tomentum which, moreover, is less distinct. — R. puberula ENGL., which is unknown to me, seems at any rate nearly allied with this and the preceding species; it is, however, described as having all the veins slender, whilst in this and the preceding species the primary and secondary veins are distinctly different.

Raphidophora scaberula, V. A. V. R.

Planta scandens, usque 3 m. vel plus alta. Foliorum petiolus ± 47½ cm. longus, antice canaliculatus et fere usque ad medium geniculi 3 cm. longi

[1]) This spurious tomentum is caused by the presence of innumerable very minute capitate-clavate papillae that can be seen by high magnifying power only; in the dried plant these papillae become somewhat contracted, and more distinct when seen under a common lens, then giving the costa beneath a very thinly tomentose aspect.

vaginatus, perdense sed minutissime puncticulato-scaberulus; vagina caduca; lamina in sicco coriacea, lanceolata, in specimine 52 × 16 cm., circiter in medio latissima, inaequilatera, uno latere ± $1^1/_4$-plo latiore, basi acute rotundato cuneata, apice acuta; costa subtus decidue, breviter puberula, inter pilos haud vel vix spurie tomentosa [1]); venae in sicco utrinque sed subtus distinctius prominentes, patentes, leviter arcuato-ascendentes, apice sursum curvae; venae primariae ± 22 utrinque, distinctae, venis secundariis 1 et tertiariis 4—6 sensim gracilioribus, venulis transversalibus gracillimis unitis interpositis. Pedunculus $7^1/_2$—10 em. longus. Spatha crasse coriacea, 15 cm. longa, acuta. Spadix cylindraceus, florifer brevissime stipitatus, potius subsessilis, $12^1/_2$ cm. longus, in sicco $1^3/_4$ cm. crassus, basi obliquus, apice late rotundatus, fructifer paullo longius stipitatus, usque ± $17^1/_2$ cm. longus, paullo crassior; ovaria prismatica, ± 4 mm. longa, $^1/_4$ parte apicali incrassata, 4—6-angulosa, ± $1^1/_2$ mm. crassa, ± truncata, levissime radiato-rugulosa; ovula copiosa, ad placentas 2 oppositas disposita; stylus brevissime cylindraceus; stigma rotundato-discoideum; planum, quam stylus non latius. (Fig. y).

Fig. y.

Sumatra (*Deli, Betimoes Valley*, primeval forest, alt. ± 500 m., J. A. LÖRZING No. 5563, 20 March 1918).

Raphidophora jaculiformis, V. A. v. R.

Caudex subteres, internodiis $^1/_2$—$^3/_4$ cm. longis, $^3/_4$—1 cm. crassis. Foliorum petiolus $12^1/_2$—$17^1/_2$ cm. longus, usque ad geniculum $^1/_2$—1 cm. longum vaginatus; vagina crasse scariosa, a basi apicem versus sensim angustata, persistens; lamina in sicco coriacea, lanceolata, $17^1/_2$—25 × $4^1/_2$—$5^1/_2$ cm., infra medium latissima, inaequilatera, uno latere $1^1/_4$—$1^1/_2$-plo latiore, basi oblique rotundato-cuneata, apice sensim angustata, acuminata, acumine saepe subabrupte falcatulo-curvato, breviter apiculato; venae in sicco utrinque prominentes, supra subaequales, subtus distincte diversae; venae primariae 10—15 utrinque, plus minusve ascendentes, apicem versus sursum curvae, venis secundariis tertiariisque gracilioribus venulis transversalibus gracillimis unitis interpositis. Pedunculus ± $7^1/_2$ cm. longus. Spatha coriacea, cylindraceo-navicularis, ± $5^1/_2$ cm. longa, hians, acuta, caduca. Spadix sessilis, cylindraceus, $3^1/_4$—$3^3/_4$ cm. longus, $^3/_4$ cm. crassus, apice rotundatus; ovaria ± 3 mm. longa, apice truncata, ± 1 mm. crassa, ovulis multis, a basi usque ad apicem placentarum dispositis; stylus brevis, graciliter cylindraceus; stigma parvum.

Borneo (JAHERI).

Raphidophora foraminifera, ENGL., in Pflzrch, XXXVII (IV, 23 *B*). 45, fig. 19; *Epipremnum foraminiferum*, ENGL., Bot. Jahrb., XXV, 11.

A plant from *Sumatra* (*Deli, Sibolangit*, J. A. LÖRZING No. 5521), flowering and fruiting February 1918, which is undoubtedly this species,

[1]) See my information under R. pilosula v. A. v. R.

has the leaves agreeing exactly with ENGLER's incomplete diagnosis except in some of the dimensions, which may be due to different circumstances. The plant is distinguished as follows: Caudex to 15—20 m. high climbing, with the internodes ± 1 cm. thick. Leaves with the petiole to 30—40 cm. long, canaliculate and sheathing quite to the knee, dorsally densely but very minutely puncticulate, when young perhaps minutely puberulous; sheath membranaceous, soon dilacerated, caducous; knee to ± 2 cm. long; lamina flaccid-coriaceous, oblong, to 25—45 × 12½—20 cm., above dark-green, beneath pale-green, more or less (not very) unequal-sided, the base oblique, rounded or rotundate-cuneate, the apex more or less suddenly and very shortly, acutely acuminate; costa above flat or somewhat depressed, beneath very prominent, densely, minutely, deciduously puberulous (when dry not thinly tomentose among the hairs [1]), of the adult plant flanked on each side with one to several suborbicular, oblong or deltoid-oblong holes ½—3 cm. long, placed between the primary veins; primary veins 20—30 on a side, spreading, upcurved towards the apex, prominent beneath, separated by ± 3 finer secondary veins united by still finer transversal veinlets. Peduncle 7½—10 cm. long. Spathe thick, cylindrical, to ± 15 cm. long, 1½—2 cm. diam., when young pale-green, afterwards yellowish, acute. Spadix very short-stalked, cylindrical, floriferous 7½—10 cm. long, pale-yellow, fructiferous to 12½ cm. long, 2½ cm. thick, bluntly rounded at the apex; ovaries prismatical, the base laterally compressed, the upper ⅓ thickened, semiglobose-pyramidal, 6-angular, the apex rather rounded, attenuated suddenly into a very short, thick style (fig. z); ovules numerous, arranged in 2 rows along 2 opposite parietal placentae; stigma discoid, round, somewhat broader than the style, flat, with a small central depression.

Fig z.

A non-flowering plant, up till now cultivated in the Buitenzorg Gardens under the name of *E. foraminiferum* ENGL., probably determined by ENGLER, has the leaves agreeing exactly with LÖRZING'S Sumatran plant.

Raphidophora celatocaulis, V. A. V. R., this Bull., I[5], 382.

Lamina of the fully developed plant with the segments to 15 or more on a side. Peduncle 17½—20 cm. long. Spathe thick-fleshy, when young cylindrical, convolute, acuminate, green, of the flowering spadix quite open, very pale and soon becoming greyish on the inner side, bright-yellow on the outer side, soon falling. Spadix 12½—20 cm. long, 2—2½ cm. thick, pale- or dirty-grey-yellow, soon becoming green; stigma black or black-brown, longitudinally grooved.

[1]) See my information under R. pilosula v. A. v. R.

This completion is taken from the same specimen cultivated in the Buitenzorg Gardens, having flowered afresh December 1919 and January 1920 — *Pothos eelatocaulis* N. E. Br. is said to have been discovered in *North Borneo.*

Schismatoglottis silvestris, V. A. v. R.

Herba 25—40 cm. alta, caudiculo usque ± 15 cm. longo, $^1/_2$ cm. crasso. Foliorum petiolus 5—15 cm. longus, usque ad medium vel brevius decidue membranaceo-vaginatus, parte superiore antice cristis 2 anguste aliformibus, oppositis munitus, ceterum dense et minutissime glanduloso-puberulus; lamina in sicco tenuiter herbacea, submembranacea, elliptica vel ovata, ad vel infra medium latissima, $7^1/_2$ — 15 × 4 — 7 cm., supra obscura, immaculata, subtus pallidior, apice obtusiuscula, basi rotundato-cuneata vel late rotundata; costa venaeque primariae subtus dense et minutissime glanduloso-puberulae; venae primariae ± 8—10 utrinque, ascendentes vel basilares subhorizontales, sursum curvae, apice vena collectiva submarginali unitae; venae secundariae tertiariaeque indistinctae, graciles. Pedunculus 2—4 cm. longus. Spatha viridis vel pallide viridis; tubus obovoideo-fusiformis, $3^1/_2$ cm. longus; lamina convoluta conoideo-cylindracea, $3^1/_2$ cm. longa, acuta. Spadix $4^3/_4$—5 cm. longus, albus vel pallide griseus; inflorescentia feminea cylindracea, $1^1/_2$ cm. longa, $^1/_2$ cm. crassa, basi obliqua, basi et apice staminodiis breviter obconoideis vel clavatis munita; ovaria conoideo-ovoidea; stigma sessile, crasse pulvinatum, rotundum; staminodia inter ovaria non vidi; inflorescentia mascula a feminea interstitio $1^1/_2$ cm. longo, organis neutris sparsis, minute capitatis vel applanatis munito separata, cylindracea, $1^3/_4$—2 cm. longa, 3 mm. crassa, parte apicali sterili brevissima, breviter conoidea vel semiglobosa, $1^1/_2$—2 mm. longa; stamina parva; partis apicalis sterilis staminodia breviter obconoideo-clavata, apice rotundato-applanata.

Distinct by the very short sterile apical portion of the masculine inflorescence.

Sumatra (Mt. Malintang, in forest, alt. 1200—1300 m., H. A. B. BÜNNEMEIJER Nos. 3813, 3850, 22 July 1918).

Var. subcordata: A forma typica differt dimensionibus foliorum aequalibus vel maioribus; petiolus usque $22^1/_2$ cm. longus; lamina quam in typica saepe pro ratione latior, $8^1/_2$ — 15 × $5^1/_2$ — 9 cm., basi paullo emarginata vel subcordata. Spatha cum spadice brevior, inflorescentiis cum interstitio neutro (apice sterili inflorescentiae masculae excepto) pro ratione abbreviatis.

Sumatra (Mt. Talamau, in forest, alt. 500—900 m., H. A. BÜNNEMEIJER Nos. 387, 434, 24 — 25 April 1917).

Schismatoglottis asperata, ENGL., in Pflzrch, LV (IV, 23 *Da*), 105.

Var. albomaculata, ENGL., l. c. 106; *Sch. crispata*, HK. F., in Bot. Mag., 6578. TEYSMANN's No. 11545 (not 1151), mentioned in ENGLER's diagnosis, has the petiole provided with 2 opposite, undulate, wing-shaped crests, and the very short setae placed in clusters on minute tuberculiform elevations.

Schismatoglottis puberulipes, V. A. V. R.

Herba parva, usque ± 15 cm. alta, caudiculo epigaeo, brevi. Foliorum petiolus $2^1/_2$—6 cm. longus, viridis, cum vagina (extus) et costa venisque primariis (subtus) dense et breviter glanduloso-puberulus, postremo hic illic glabrescens, dimidia parte basilari vel longius aut brevius vaginata, inter vaginam et laminam teres, antice cristis decoloratis, angustis, aliformibus 2-marginata; vagina pallide viridis, persistens; lamina herbacea, ovalis, 5—10 × 3—$6^1/_2$ cm. vel paullo major, medio latissima, viridis, subtus quam supra pallidior, apice rotundata, specie acumine brevissimo, mox decidente munita, basi breviter sed distincte cordata, lobis $^1/_2$—1 cm. longis, rotundatis, hamato-incurvatis et paullo imbricatis; costa subtus prominens; venae primariae 12—18 utrinque, plus minus horizontales, apicem versus sursum curvae, subtus prominentes, hic illic vena secundaria, paullo prominenti, ceterum venis tertiariis quaternariisque copiosis, gracilibus, subparallelis interpositis. Pedunculi breves, $^3/_4$ cm. longi, pallide virides. Spatha ± 3 cm. longa, demum longior, infra medium paullo constricta, viridis, demum pallide viridis, venis paullo obscurioribus, longitudinalibus ornata, tubo obovoideo, primum 1 cm. longo et subaequiamplo, lamina primum acute ovoidea, 2 cm. longa, convoluta, clausa vel vix aperta, demum irregulariter decidua. Spadix sessilis, florifer $2^1/_2$ cm. longus; inflorescentia feminea subconoidea, 1 cm. longa, basi subaequicrassa, obliqua, organis neutris 1—2-seriatis, pallide brunneo-flavidis vel albidis, obpyramidato-conoideis, apice applanatis, 4—6-angulosis cincta; ovaria obovoidea, pallide viridia, supra conspecta obtuse 4—6-angulosa; stigma rotundum, discoideum, subsessile, albidum; inflorescentia mascula a feminea interstitio brevi, $^1/_4$ cm. longo, organis neutris contiguis, albis, longiusculis, anguste obconoideis, apice applanatis, paullo incrassatis munito separata, ceterum suboblongo-ellipsoidea, $1^1/_4$ cm. longa, medio $^3/_4$ cm. crassa, dimidia parte inferiore fertilis, alba, dimidia parte superiore sterilis, pallide flavida, apice obtuse rotundata; antherae filamenta lata et aequicrassa subaequantes; thecae obtuse subobconoideo-prismaticae, apice applanatae, supra conspectae anguloso-hamato-reniformes, connectivo non superatae; partis apicalis sterilis staminodia anguste obconoideo-pyramidata, obtuse 4—6-angulosa, apice rotundato-truncata.

The description is taken from specimens cultivated in the Buitenzorg Gardens, flowering December 1919, January to September 1920. Other particulars unkown.

Borneo.

Schismatoglottis rotundifolia, ENGL., in Pflzrch., LV (IV, 23 *Da*) Arac.-Philod.-Homal.-Schism., 122.

Plants cultivated in the Buitenzorg Gardens under name of Sch. rotundifolia ENGL. are distinguished from ENGLER's description by the following characters: Petiole 5—7 cm. long, sheathing $^1/_5$—$^2/_5$ its length, when young red, adult viridescent, the ventral side narrowly 2-marginate, for the rest densely and very minutely glandular-puberulous, as are the costa and primary veins beneath; lamina broadly cordate-ovate, $5^1/_2$—$7^1/_2$ × 4—6 cm., blunt, deciduously apiculate, the basal lobes semiorbicular, $^3/_4$—$1^1/_2$ × $1^1/_2$—$2^1/_2$ cm., separated by a very narrow sinus with an acute, shortly linear-subulate corner; upper surface dark-green, opaque-velutinous by crowded, very minute, rounded papillae (as in Homalomena humilis HK. F., includ. var. velutina) and provided with numerous scattered, white points; under surface pale-green; primary lateral veins less numerous, 5—7 on a side. — Spathe and spadix unknown.

Schismatoglottis batoensis, ENGL., in Pflzrch, LV (IV, 23 *Da*), Arac.-Philod.-Homal.-Schism., 111.

ENGLER's diagnosis of this species should be completed as follows: Petiole 20—30 cm. long, when young densely, shortly puberulous, at length rather glabrescent; lamina when dry herbaceous, ovate- or occasionally subsagittate-cordate, 16—22 × 9—11 cm. (in the specimens on hand), with the basal lobes semioblong, sometimes obtusely triangular, about $^1/_7$—$^1/_4$ as long as the antical lobe; costa and the lower part of the primary veins beneath (the costa densely, the veins sparingly) shortly puberulous; primary veins many on a side, upcurved towards the apex, the lower radiating, the lowest much deflexed, the costal ones spreading. Peduncle at length to 15 cm. long. Spadix (young) $5^1/_2$ cm. long, with the masculine inflorescence long and slender, subcylindraceo-fusiform, (young) 4 cm long.

Schismatoglottis grandiflora, V. A. V. R.

Herba ± 30 cm. alta, caudiculo ± 5 cm. longo, $^1/_2$ cm. crasso. Foliorum petiolus 10—25 cm. longus, vagina 3—4 cm. longa instructus, ceterum brevissime et decidue glanduloso-puberulus; lamina in sicco tenuiter herbacea, cordato-ovata, usque ± $12^1/_2$—18 × 5—9 cm., supra obscura, immaculata, subtus pallidior, apice breviter acuminata, lobis posticis subsemiorbicularibus, $^3/_4$—$2^1/_2$ × $1^1/_2$—4 cm.; costa venaeque primariae subtus brevissime et decidue glanduloso-puberulae; venae primariae 8—12 utrinque, apicem versus sursum curvae, apice vena collectiva crassa, intramarginali unitae, basales radiantes, ceterae ascendentes; venae secundariae, tertiariae et quaternariae sensim graciliores. Pedunculus 2—3 cm. longus. Spatha ± 12 cm. longa; tubus obconoideo-obovatus, 4 cm. longus, fere $1^1/_2$ cm. amplus; lamina explanata oblonga, 8 cm. longa, 3 cm. lata, apice abrupte,

breviter acuminata. Spadix (ex sched.) albus; inflorescentia feminea obconoideo-oblonga, 2 cm. longa, $^3/_4$ cm. crassa, basi attenuata, fere $^1/_2$ partem usque dorso spathae adnata; ovaria oblonga; stigma sessile, crasse pulviniforme, rotundum; staminodia inter ovaria non vidi; inflorescentia mascula a feminea interstitio crasso, subconoideo, 1 cm. longo, organis neutris sparsis, breviter obconoideis, saepe 2—4-nis munito separata, parte basali fertili cylindracea, 2 cm. longa, $^1/_2$ cm. crassa, parte apicali sterili conoideo-cylindracea, 5 cm. longa, infra medium $^3/_4$ cm. crassa, basi et apicem obtusum versus paullo attenuata; antherae thecis elongato-cupuliformibus, quam filamento paullo longioribus; staminodia partis apicalis sterilis elongato-obpyramidata, subprismatica, apice applanata, relative acute, irregulariter 3—6-angulosa.

Distinguished by the proportionally large inflorescence.

Sumatra (*Mt. Talamau*, in forest, alt. 500 m., H. A. B. BÜNNEMEIJER No. 536, 1 May 1917).

Schismatoglottis monticola, V. A. V. R.

Herba usque ± 40 cm. alta, caudiculo e basi breviter repente ascendente, usque + 15 cm. alto, $^3/_4$ cm. crasso. Foliorum petiolus quam lamina + $1^1/_2$—2-plo longior, 15—30 cm. longus, vagina 5—10 cm. longa instructus, juvenilis probabiliter brevissime glanduloso-puberulus, glabrescens; lamina in sicco herbacea, triangulari- vel ovato-cordata, ± 11—15 × $5^1/_2$—$7^1/_2$ cm., supra obscure viridis, immaculata, subtus pallide viridis; lobus anticus linea extrorsum curvata apicem acuminatum versus angustata; lobi postici semiorbiculares vel obtuse triangulares, + $^1/_6$—$^1/_5$ longitudinis lobi antici metientes; costa (cum venis lateralibus primariis) subtus prominens et brevissime glanduloso-puberula, postremo plus minusve glabrescens; venae primariae ± 10—12 utrinque, apicem versum sursum curvae, vena collectiva crassa, submarginali unitae, basales radiantes, constales sensim ascendentes; venae secundariae tertiariaeque sensim graciliores. Pedunculus gracilis, usque $7^1/_2$ cm. longus, postremo longior. Spatha viridis ad rubescens (carnea); tubus $1^1/_2$ cm. longus, demum longior, usque $2^1/_2$ cm. longus; lamina aperta, $4^1/_2$ cm. longa, explanata $1^1/_2$ cm. lata, acuminata. Spadix $4^1/_2$ cm. longus; inflorescentia feminea florifera oblongo-ellipsoidea, $^3/_4$ cm. longa et $^1/_3$ cm. crassa, postremo sat ovoideo-conoidea, usque ± 2-plo maior; ovaria parva, oblonga vel ovoidea; stigma sessile, crasse discoidea, rotundata, pro ratione magna; staminodia inter ovaria non vidi; inflorescentia mascula cylindracea, 3 cm. longa, $^1/_3$ cm. crassa, basi apiceque obtusiuscula, a feminea interstitio gracili, ± $^1/_2$ cm. longo, organis neutris minutissimis, capituliformibus sparse munito separata, parte apicali sterili partem fertilem basalem ± aequante; stamina minuta; staminodia partis apicalis sterilis apice applanata, in circuitu rotundata vel rotundato-angulosa.

Near Sch. batuensis ENGL.

Sumatra (*Deli, Bandar-baroe*, in primeval forest, alt. 1200 m., J. A. LÖRZING No. 4584, 30 December 1916).

Schismatoglottis hastifolia, ENGL., in Pflzrch, LV (IV, 23 *Da*), Arac.-Philod.-Homal.-Schism., 116.

If the specimen up till now cultivated in the Buitenzorg Gardens under the name of Sch. hastifolia HALL. F. is the same specimen as that on which ENGLER based his diagnosis, the diagnosis should be modified as follows: Petiole $12^1/_2$—50 cm. long, sheathing about $^1/_3$ its length, dark-dirty-red, viridescent towards the apex, the upper part flattened or slightly concave and acutely 2-marginate on the anterior side, for the rest terete and, like the costa and lower part of the primary veins beneath, when young densely but very minutely and rather deciduously papilloso-puberulous; lamina firm-herbaceous, sagittate-triangular-oblong, rarely hastate, 15—30 × 6—15 cm., the upper surface dark green, often becoming paler-green-striated between the veins, especially towards the margin, the under surface pale-green, subglaucous, the apex slightly falcate, acuminate, apiculate, the basal lobes triangular, bluntish, separated by an acute or subrectangular sinus; costa beneath copiously (not densely), very minutely and rather deciduously papilloso-puberulous, the primary veins sparingly so towards the base; primary veins 12—18 on a side, upcurved towards the apex, the lower ones radiating, the lowest deflexed; secondary and tertiary veins finer than the primary ones. Spathe . . . . . Spadix . . . . .

The Buitenzorg Herbarium possesses 2 incomplete, erroneously numbered flowers preserved in alcohol, which are probably proceeding from the same plant. They have the spathe with the tube obconoid-oblong, the lamina wanting. Spadix with the feminine inflorescence cylindraceous, 6—9 mm. long, 5 mm. thick, oblique at the base; ovaries oblong-ovoid; stigma pulvinate, round, sessile; staminodes . . . .; masculine inflorescence separated from the feminine by a thick interstice about $^3/_4$ cm. long, provided with several very minute neuter organs of which the lower are apparently more or less crowded, the others scattered, ...

Schismatoglottis belophylla, V. A. V. R.

Herba majuscula, cum foliis 25—50 cm. alta, caudice ascendente, 5—10 cm. alto. Foliorum petiolus 25—40 cm. longus, fere usque ad medium vaginatus, fere usque ad laminam sordide brunneo-purpureus, interdum brunneo-ruber, antice plus minusve canaliculatus, ceterum dense, breviter puberulus, postremo glabrescens; lamina in sicco firmiter herbacea, triangulari- vel oblongo-sagittata, usque 20—30 × 7—14 cm., supra obscure viridis, marginem versus saepe pallidius viridi-maculato-striata, subtus pallide viridis, lobo antico triangulari vel oblongo-triangulari, apice acuto ad longius, acute acuminato, lobis posticis plerumque elongato-triangularibus, quam lobo antico 3-plo brevioribus, obtusis, retrorsis vel subextrorsis, sinu angusto ad late triangulari separatis; costa subtus dense, breviter puberula; venae primariae secundariaeque subtus basin versus plus minusve puberulae; venae primariae 10—12 utrinque, apicem versus sursum curvae, basales

radiantes infimae deflexae, costales plus minusve patentes; venae secundariae plus minusve graciles; venae tertiariae quaternariaeque gracillimae, absconditae. Pedunculus 10—15 cm. longus, carneus ad pallide rubro-brunneus, apicem versus incrassatus et in basin spathae sensim transiens. Spatha 10—11 cm. longa; tubus elongato-urceolatus, $2^1/_2$—3 cm. longus, pallide viridis; lamina conoideo-fusiformis, pallide viridis ad carnea, demum sublactea, acute acuminata. Spadix $7^1/_2$—9 cm. longus; inflorescentia feminea conoideo- vel ellipsoideo-oblonga, ± 2 cm. longa, in sicco 4—5 mm. crassa, basi obliqua et apice staminodiis breviter stipitatis, capitato-clavatis, inferioribus 1—2-seriatis, superioribus numerosis, plus minusve confertis instructa; ovaria conoideo-oblonga, perpallide viridia; stigma pulvinatum, rotundum, quam apex ovarii latius; inflorescentia mascula e basi subgracili subcylindracea, potius elongato-clavato-fusiformis, 5—$5^1/_2$ cm. longa, lactea, in sicco ± 3 mm. crassa, a feminea interstitio 1—$1^1/_4$ cm. longo, organis neutris sparsis, sessilibus vel breviter stipitatis, tuberculiformibus vel capitatis munito separata; pars basalis fertilis basi plus minusve laxiflora; pars apicalis sterilis partem fertilem ± aequans, obtusa; thecae breviter cupuliformes, filamenta ± aequantes, apice truncatae, leviter annuliformi-incrassatae; staminodia partis sterilis prismatico-cylindracea, apice truncata.

Probably nearly allied to Sch. batuensis and Sch. hastifolia ENGL.

Sumatra (*Deli*, *Sibolangit*, on dry slopes in primeval forest, alt. 400 m., J. A. LÖRZING No. 5450, 2 December 1917).

Schismatoglottis sagittifolia, V. A. V. R.

Herba ± 60—65 cm. alta, caudiculo in specimine brevissimo. Foliorum petiolus 30—35 cm. longus, basi vagina ± $7^1/_2$ cm. longa instructus, ceterum brevissime et plus minusve decidue glanduloso-puberulus; lamina in sicco tenuiter herbacea, submembranacea, elongato-sagittata, ± $27^1/_2 \times 6$ cm., supra obscura, immaculata, subtus pallidior, in vivo specie glauca; lobus anticus lineari-oblongus, margine paullo extrorsum curvata, apicem versus sensim subulato-triangulari-acuminatus, breviter apiculatus; lobi postici subelongato-triangulares, retrorsi vel vix extrorsi, $3—4 \times 1^1/_2—2^1/_2$ cm., apice obtuse rotundati; costa venaeque primariae subtus relative dense et minutissime glandulso-puberuli; venae primariae ± 15—20 utrinque, apicem versus sursum curvae, apice vena collectiva crassa, intramarginali unitae, venarum basalium infimae retrorsae, ceterae basin versus patentes vel horizontales; venae secundariae, tertiariae quaternariaeque graciles. Pedunculus ± $7^1/_2$ cm. longus, demum longior. Spatha usque ± 9 cm. longa (vel longior?); tubus obovoideo-obconoideus, ± $1^3/_4$ cm. longus; lamina longe conoideo-fusiformis, ± $7^1/_4$ cm. longa, acuminata. Spadix in specimine incomplete evolutus, (ex sched. albus); inflorescentia feminea oblongo-ellipsoidea, ± 1 cm. longa, apice staminodiis copiosis, crebris munita; ovaria oblonga; stigma discoideum, rotundum, relative latum; staminodia inter ovaria non vidi; inflorescentia mascula probabiliter longe cylindracea vel

conoideo-cylindracea, a feminea interstitio ± 1/2 cm. longo, organis neutris perbrevibus, supra applanatis rotundisque munito separata.

Apparently very near Sch. hastifolia ENGL. but the leaves with the lamina proportionally much more elongated,

Sumatra (Ophir District, near *Taloe*, in forest, alt. 600 m., H. A. B. BÜNNEMEIJER No. 64, 8 April 1917).

Schismatoglottis rubrocincta, ENGL., in Pflzrch, LV (IV, 23 *Da*), Arac.-Philod.-Homal.-Schism., 106.

Plants from an unknown habitat and collector, cultivated in the Buitenzorg Gardens, on which ENGLER very probably based this species, are distinguished from ENGLER's diagnosis as follows: Caudex erect, varying from very short to 15 cm. high and 1 cm. thick; petiole green, sheathing to nearly or more than half its length, the anterior side somewhat flattened and narrowly 2-marginate-cristate; sheath pale-green; crests passing into the base of the margin of the lamina (not the lowest primary veins), very pale-green, more or less distinctly and sparingly, minutely red-puncticulate; lamina smaller (probably due to the condition in which the plants are placed), much acuminated, bounded by a narrow line consisting of numerous crowded, very minute, red points, for the rest bringht-green above, paler beneath with the space between the intramarginal collective vein and the margin provided with scattered, minute, red points; primary veins 4—6 on a side, prominent beneath; secondary veins varying from nearly as stout as the primary ones to nearly as fine as the tertiary ones; collective vein prominent beneath, disappearing towards the base.

Schismatoglottis diversicolor, V. A. V. R.

Herba parva, usque ± 15 cm. alta, caudiculo brevi, maxime ± 3 cm. longo. Foliorum petiolus 6—15 cm. longus, obscure sordide ruber, subnigro-purpureus, vagina 1 1/2—3 cm. longa instructus, ceterum subteres, dense, minutissime papillosus, antice leviter applanatus et cristis angustis, rubris, in venas primarias infimas continuatis 2-marginatus; lamina herbacea, in sicco tenuior, late oblonga, 8—12 × 4—6 cm., supra in vivo obscure viridis, maculis minutissimis, metallico-caerulescentibus vel -viridescentibus praesertim secus costam lucidula, ceterum minutissime albido-puncticulata et foveolata, in sicco opaca, minutissime verruculosa, subtus pallide viridis, apice subabrupte, breviter acuminata, breviter apiculata, basi plus minusve sed non profunde cordato-emarginata; costa subtus basin versus obscure sordide rubra, dense, minutissime papillosa, apicem versus pallide viridis; venae primariae 7—10 utrinque, apicem versus sursum curvae, basi abrupte decurrentes, superiores suberectae, basales ± horizontales vel leviter radiantes; venae secundariae tertiariaeque quam primariae graciliores. Pedunculus 2 1/2—5 cm. longus, pallide viridis. Spathae tubus obconoideo-obovoideus, 2 1/4—2 1/2 cm. longus, ± 6 mm. amplus, olivaceus (potius viridis,

rubro-afflatus); lamina conoideo-fusiformis, 4—5 cm. longa, $^3/_4$—1 cm. ampla, hians, pallide viridescens, longitudinaliter olivaceo-venosa, anguste rubro-marginata, levissime ruguloso-verruculosa, acuminata, rubro-apiculata. Spadix 5—6 cm. longus; inflorescentia feminea cylindracea, $1^1/_2$—2 cm. longa, 3 mm. crassa, maxima parte spathae adnata, staminodiis paucis, sparsis, sordide albidis, clavatis vel stipitato-obconoideis, pistilla aequantibus munita; ovaria oblonga, pallide viridia; stigma parvum, sessile, olivaceum; inflorescentia mascula femineae contigua, parte basali fertili cylindracea, $1^1/_4$—$1^3/_4$ cm. longa, 2 mm. crassa, albida, hic illic roseo-afflata, parte apicali sterili fusiformi-cylindracea, ± 2 cm. longa, medio 3 mm. crassa, pallide aurantiaca, acuta, denudato-apiculata; antherae thecis breviter cupuliformibus, quam filamento paullo longioribus, apice truncatis; staminodia partis apicalis sterilis brevia, inferiora oblonga, apice rotundata, superiora subprismatica, apice truncata.

A very handsome small species resembling in shape of the leaves and the flower (not the colours) Sch. trifasciata ENGL. — The description is taken from living plants cultivated in the Buitenzorg Gardens, flowering July 1920.

Borneo (NIEUWENHUIS No. 1078).

Schismatoglottis lancifolia, HALL. F. & ENGL., in Pflzrch, LV (IV, 23 *Da*), Arac.-Philod.-Homal.-Schism., 88.

If the plant from *Sumatra* (*Deli*, JAHERI), up till now cultivated in the Buitenzorg Gardens under the name of *Sch. lancifolia* HALL. F., is the same as that on which ENGLER based his incomplete description, the diagnosis will be as follows: Relatively large herb, with the caudex short. Leaves with the petiole about as long as the lamina, green, the sheath 2—3 cm. or more long, the anterior side canaliculate and narrowly 2-cristate but more distinctly towards the apex, the upper part copiously but very minutely red-puncticulate, as are the crests which are passing into the base of the lamina (not the lowest primary veins); lamina relatively thick-herbaceous, when dry thinner, lanceolate, $7^1/_2$—$15 \times 1^3/_4$—4 cm. or larger, slightly unequal-sided, mostly broadest at the middle, the upper part gradually acuminate, often slightly falcate, shortly apiculate, the base cuneate or rotundate-cuneate, the upper surface dark-green, copiously albido-puncticulate, the under surface pale-green; costa pale-green on both sides but the under side copiously and minutely red-puncticulate; primary veins 4-6 or more on a side, prominent beneath, the highest erect from an arcuate-ascending base, the lowest much ascending, about parallel with the margin, upcurved; secondary, tertiary and quaternary veins growing gradually finer. Peduncle 5—6 cm. or more long. Spathe with the tube ovoid, 2—$2^1/_2$ cm. long and about 1 cm. diam. or larger; lamina probably elongate-conoid. Spadix short-stalked, the stalk very oblique, connate with the spathe; feminine inflorescence cylindraceo-conoid, about 1 cm. long and $^1/_4$ cm. thick or larger, the base

very oblique but not connate with the spathe and like the apex provided with several oblong or subclavate, pale staminodes which are about as high as the pistils; ovaries oblong; stigma thick-pulvinate, proportionally very broad; masculine inflorescence elongate-conoid, 2 cm. or more long, about 3 mm. thick at the base, separated from the feminine inflorescence by an interstice ± $^1/_2$ cm. long and provided with scattered, adpressed, clavate neuter organs; fertile basal portion with a few sterile stamens at the base; sterile apical portion $^1/_3$ as long as the fertile portion, acute, nudate-apiculate; thecae shortly cupuliform, about as long as the filaments, truncate at the apex; staminodes of the apical portion shortly prismatical, the apex flat, irrgularly flexuose or angulose.

The description of the leaves is taken from the living plant, of the flower from alcohol material, of the dimensions from both; the words „or more" and „or larger" accompanying the mention of the dimensions etc., refer to the dimensions etc. given by ENGLER.

Sumatra, Borneo (?).

Schismatoglottis kurimana, V. A. V. R.

Herba ± 40 — 50 cm. alta, caudiculo ± $7^1/_2$ cm. longo, $^3/_4$ cm. crasso. Foliorum petiolus $12^1/_2$—15 cm. longus, usque ad medium vel longius vaginatus; lamina in sicco herbacea, elongato-lanceolata vel -ovato-lanceolata, 20 — $27^1/_2$ × $3^1/_2$—5 cm., immaculata, basi rotundato-cuneata, leviter decurrens, apice sensim relative longe acuminata, breviter tubuloso-apiculata; venae primariae 8 — 10 utrinque, ascendentes, basi decurrentes, apicem versus sursum curvae, apice vena collectiva crassa, intramarginali unitae; venae secundariae tertiariaeque quam primariae graciliores. Pedunculus ± $7^1/_2$ cm. longus. Spatha viridis; tubus fusiformis vel ovoideo-fusiformis, ± 3 cm. longus, 6—7 mm. amplus; lamina conoideo-fusiformis, 7 cm. longa, 7—8 mm. ampla, longe acuminata. Spadix usque 8 cm. longus vel paullo longior; inflorescentia feminea fusiformis vel ovoideo-fusiformis, ± 2 cm. longa, $^1/_2$ cm. crassa, basi ad ± $^1/_2$ partem usque dorso spathae adnata; ovaria lageniformia, ascendentia, hinc inde (basales et apicales plerumque) staminodiis elongato-clavatis vel longe obconoideis intermixta; stigma pulvinatum, rotundum, quam apex styliformis ovarii latius; inflorescentia mascula a feminea interstitio ± 1 cm. longo, relative gracili, organis neutris sparsis, solitariis vel 2—4-nis, elongato-clavatis vel longe obconoideis munito separata, longe cylindracea vel fusiformi-cylindracea, + $4^1/_2$ cm. longa, + 4 mm. crassa, basi et apice obtusiuscula, parte apicali sterili quam basali fertili + 2-plo longiore et paullo graciliore; antherae thecis cupuliformibus, filamentum crassum aequantibus, apice truncatis, connectivo crasso separatis; staminodia partis sterilis apicalis brevia, obpyramidata, apice plana, obtuse angulosa.

Sumatra (Lima Poeloeh Kota, Soengai Kuriman, in forest, alt. 900 m., H. A. B BÜNNEMEIJER No. 3255, 24 June 1918).

Schismatoglottis javanica, ENGL., in Pflzrch, LV (IV, 23 *Da*). Arac.-Philod.-Homal.-Schism., 108, fig. 67.

Spathe with the tube obliquely elongate-ovoid, green, dark-green-veined, very pale-punctulate between the veins, the lamina not ovoid and abruptly cuspidate but elongate-conoid and gradually attenuated from the very base towards the acute apex, yellowish-green, at length pale-yellow, striated and punctulate like the tube. Spadix with the feminine inflorescence elongate-conoid, the masculine inflorescence not clavate but subcylindrical-conoid, broadest not near the apex but near the base, separated from the feminine by a neuter interstice provided with scattered, very short and proportionally thick, obpyramidal-cuneate, nearly flat, white abortive flowers (fig. 67 *H*); ovaries green; stigma very pale-green, nearly white; staminodes of the feminine inflorescence arranged at the apex and the base, rather copious, capitate, clavate or obconoid, ivory-white, with the apex rounded or rotundate-truncate, on a rather slender, obconoid stalk; fertile portion of the masculine inflorescence pale-ochraceous; sterile portion elongate-conoid, subacute, ivory-white, the staminodes elongate-obpyramidal, subprismatical (fig. 67 *G*), with the apex nearly flat, and, like the apex of the anthers, very finely punctulate-verruculose, glittering when seen under the lens by reflected light.

ENGLER's diagnosis completed and corrected after the original plant, on which is based this species.

Schismatoglottis tenuifolia, ENGL., in Pflzrch, LV (IV, 23 *Da*), Arac-Philod.-Homal.-Schism., 113.

Leaves with the petiole as long as the lamina or shorter, $12^1/_2$—$17^1/_2$ cm. long, the anterior side canaliculate with the margins provided with a narrowly wing-shaped crest; crests passing into the lowest primary veins; lamina 18—21 × 6—7 cm., the apex rather suddenly acuminate; primary veins upcurved, connected at the apex by a rather stout, submarginal collective vein, the basal ones horizontal, the others spreading; secundary, tertiary and quaternary veins growing gradually finer. Spadix with the feminine inflorescence elongate-conoid, $1^3/_4$—2 cm. long, about 4 mm. thick; masculine inflorescence clavate, about $1^1/_2$ cm. long, $^1/_2$ cm. thick at the middle, both fertile and sterile portions about as long; fertile portion obconoid, sterile bluntly conoid-oblong, the apex rounded; staminodes wih the apex flattened, obtusely angular.

ENGLER's diagnosis is corrected and completed here after VON RÖMER's original specimen.

Schismatoglottis luzonensis, ENGL., in Pflzrch, LV (IV, 23 *Da*), Arac.-Philod.-Homal.-Schism., 88 (not 121).

ENGLER described under this specific name 2 absolutely different plants on different pages (88 and 121) of the very same monograph. Of course, one of both cannot be maintained under this name and should be renamed.

Since the library of the Buitenzorg Gardens has now several lacks or gaps due to the partial interruption of its regular completion during and after the great war, I failed to find out whether the error mentioned might have been discovered and corrected. If this should not be the case, I propose to maintain the name Sch. luzonensis ENGL. for the plant described on page 88 of the monograph quoted above and to call the other:

Schismatoglottis plurivenia, V. A. V. R.; *Sch. luzonensis*, ENGL., in Pflzrch, LV (IV, 23 *Da*), Arac.-Philod.-Homal.-Schism., 121 (not 88).
Luzon.

Schismatoglottis canaliculata, ENGL., in Pflzrch, LV (IV, 23 *Da*), Arac.-Philod.-Homal.-Schism., 112.

If the plant cultivated in the Buitenzorg Gardens, of which the Buitenzorg Herbarium possesses dried leaves and alcohol material of the flower, is the same as that on which ENGLER founded this species, then the diagnosis should be completed as follows: Petiole about as long as the lamina, sheathing $^1/_4$—$^1/_2$ its length; lamina of the adult plant rather triangular-oblong, 2—$2^1/_2$ × as long as broad, the base cordate, shortly and broadly cuneate between the basal lobes, the apex gradually acuminate; basal lobes semioblong or rotundate-triangular. Peduncle $7^1/_2$—10 cm. long. Spathe with the tube obconoid-obovate, to 2 cm. long and 1 cm. diam. Spadix about 6 cm. long; feminine inflorescence cylindrical-oblong, $2^1/_4$–$2^1/_2$ cm. long, the lower half connate with the spathe; ovaries ellipsoidal-oblong, attenuated at the base and the styliform apex; stigma thick-pulvinate, round, broader than the apex of the ovary; staminodes among the pistils several (± 25 in the specimen in hand), about twice as high as the pistils, the apex relatively small, ovate, oblong or obovate, on a long and proportionally thick stalk; masculine inflorescence close to the feminine, subcylindrical, $3^3/_4$ cm. long, $^1/_2$ cm. thick below the middle, very slightly attenuated at the base and the blunt, rather rounded apex, the sterile apical portion about twice as long as the fertile basal portion; thecae shortly cupiliform, shorter than the filaments, truncate at the apex; staminodes slender-obpyramidal, subprismatical, the apex truncate, irregularly, obtusely angular. — The alcohol material has the stalks of the lower staminodes, the filaments, the apices of the thecae, and the higher staminodes copiously dark-puncticulate or shortly, longitudinally dark-striolate.

Schismatoglottis wahaiana, V. A. V. R.

Planta parva, ± 15 cm. alta, caudiculo brevi. Foliorum petiolus $4^1/_2$—9 cm. longus, basi $^1/_4$—$^1/_3$ longitudinis vaginatus, ceterum antice applanatus vel leviter canaliculatus, 2-cristatus, sursum viridis, deorsum punctis minutis vel striis longitudinalibus brevissimisque, rubris specie obscure sordide ruber, postremo viridescens; vagina rosea, copiose rubro-puncticulata vel -striolata; cristae anguste aliformes, leviter undulatae, pallide virides, rubro-puncticulatae;

lamina firmiter herbacea, cordato-ovata, 7—12 × 4—7 cm., foliorum majorem saepe inaequilatera, juvenulis robro-cincta, supra obscure viridis, immaculata, subtus pallidior, apice plus minusve acute acuminata, breviter apiculata, basi lobis ± semiorbicularibus, 1—1½ × 1½—3 cm., sinu relative acuto separatis; venae primariae ± 8—11 utrinque, basales radiantes, costales patentes, apicem versus sursum curvae, apice vena intramarginali, relative crassa unitae; venae secundariae, tertiariae quaternariaeque sensim graciliores. Cataphylla rosea, secus costam copiose minuteque coccineo-puncticulata et -striolata. Pedunculus ± 2 cm. longus, leviter, longitudinaliter rugulosus, viridis, deorsum copiose rubro-puncticulatus et -striolatus. Spathae tubus obconoideo-obovoideus, usque ± 1 cm. longus, ½—1 cm. amplus, viridis, rubro-puncticulatus, leviter, longitudinaliter rugulosus; lamina elongato-ovoidea, usque 3½ cm. longa et ¾ cm. ampla, acuta, coccinea vel obscure sordide rubra aut viridis sed punctis minutis, plus minusve copiosis specie rubro-afflata, longitudinaliter viridi-venosa. Spadix elongatus; inflorescentia feminea conoidea vel subcylindracea, + 7 mm. longa, 3 mm. crassa, a basi fere medium usque spathae adnata, praesertim ad basin staminodiis paucis, eburneis vel sordide albis, pistilla non vel paullo superantibus, crasse stipitatis, apice capitatis, semiglobosis vel obconoideis munita; ovaria proportione crassa, breviter oblonga, perpallide flavido-viridia, stigmate sessili, parvo, discoideo, concolore coronata; inflorescentia mascula elongato-ellipsoidea vel subcylindracea, a feminea interstitio 2 mm. longo, organis neutris crebris, 2-seriatis, breviter subprismaticis, apice truncatis et sordide albis vel pallide flavido-brunneis aut -griseis munito separata, 1½—2 cm. longa, 3—4 mm. crassa, parte basali fertili 8—10 mm. longa, pallide brunneo-grisea vel perpallide flavido-brunnea, parte apicali sterili 7—11 mm. longa, pallide flavida, flavido-brunnea vel grisea, apice obtusa vel rotundata; antherae thecis brevissime cupuliformibus, quam filamentum brevioribus, apice truncatis, connectivo non vel paullo superatis; staminodia partis apicalis breviter subprismatica, irregulariter, obtuse angulosa, apice truncata vel rotundato-truncata, non raro lateraliter connata.

The description is taken from living specimens cultivated in the Buitenzorg Gardens, flowering June, September and November 1920.

Ceram (*Wahai*, *Kali Solo* and *Kali Koea*, L. RUTTEN's Exploration Commission).

Schismatoglottis leptophylla, V. A. V. R.

Planta usque + 50 cm. alta, caudice usque ± 15 cm. longo. Foliorum petiolus 10—35 cm. longus, sursum antice plus minusve canaliculatus, basi ⅓—½ longitudinis vel longius vaginatus; vagina tenuis, a basi latiuscula sensim angustata; lamina tenuis, in sicco submembranacea, ± 9—20 × 4¼—12 cm., acuminata, in speciminibus minoribus oblonga et basi rotundata, vix emarginata, in speciminibus majoribus ovata et basi cordata, lobis posticis usque 3 cm. longis; venae primariae distinctae,

6–12 utrinque, basales horizontales vel radiantes, apicem versus sursum curvatae, costales sensim valde ascendentes et incurvatae; venae secundariae tertiariaeque graciliores, tertiariae gracillimae. Pedunculus 5–10 cm. longus. Spatha juvenilis 6–8 cm. longa, $^1/_2$ cm. ampla, tenuis, pallide viridis ad rosea vel lurido-violacea; tubus obconoideo-obovatus, $1^1/_2$–$2^1/_2$ cm. longus; lamina conoideo-cylindracea, acuminata. Spadix juvenilis 4–$6^1/_2$ cm. longus, albus vel pallide viridis; inflorescentia feminea subconoideo-cylindracea, 1–$1^1/_2$ cm. longa, $^1/_3$–$^1/_2$ cm. crassa, apice et basi staminodiis obconoideis vel clavatis cincta; inflorescentia mascula a feminea interstitio $^1/_2$–1 cm. longo, subgracili, organis sterilibus parvis, sparsis obsito separata, cylindracea, 3–4 cm. longa, 2–4 mm. crassa, obtusa, parte basali fertili partem apicalem sterilem + aequante; staminodia partis sterilis apice truncata.

The incomplete description of the flower has been taken from young specimens; the fully developed flower has the dimensions perhaps somewhat larger. — Probably near Sch. mutata SCORT.

Sumatra (*Mt. Koerintji*, in forest, alt. 1300–1600 m., H. A. B. BÜNNEMEIJER Nos. 8547, 8731, 8975, 9037, 7–20 March 1920).

Schismatoglottis Ruttenii, V. A. v. R.

Herba majuscula, ± 50 cm. alta, caudice + 20 cm. longo. Foliorum petiolus 20–30 cm. longus, inferne $^1/_5$–$^1/_3$ vaginatus, obscure viridis et cum vagina longitudinaliter obscurius striatus, antice apicem versus (usque ad $7^1/_2$–10 cm. infra laminam) subplanus et anguste acuteque marginatus; lamina herbacea, oblongo-sagittata, $22^1/_2$–$30 \times 12^1/_2$–$17^1/_2$ cm., supra obscure viridis, immaculata, lucida, subtus pallide viridis, subglauca; lobus anticus ad vel infra medium latissimus et saepe inaequilaterus, apicem relative longe et anguste sed obtusiuscule falcato-acuminatum, relative longe et graciliter cylindraceo-apiculatum versus linea plus minusve conspicue extrorsum curva angustatus; lobi postici triangulares, 4–6×5–8 cm., retrorsi vel subextrorsi, sinu ± rectangulari separati, apice obtusi; venae primariae 11–15 utrinque, basales radiantes et apicem versus valde, costales patentes et apicem versus leviter sursum curvae, omnes apice vena collectiva intramarginali, sat gracili unitae. Pedunculus ± $7^1/_2$–10 cm. longus. Spatha ± $7^1/_2$–10 cm. longa; tubus breviter conoideo-ovoideus, $1^3/_4$–2 cm. longus et ± 1 cm. amplus, viridis; lamina conoideo-fusiformis, amplitudine fere eam tubi aequante, pallide flavido-viridis vel demum flava, relative longe acuminata, subcuspidata. Spadix 4–5 cm. longus; inflorescentia feminea conoidea, $1^1/_2$–$2^1/_2$ cm. longa, $^1/_2$ cm. crassa, basi ± usque ad medium spathae adnata, apice relative crasso sublaxiflora; pistilla staminodiis paucis, quam pistillis usque ad 2-plo longioribus, albidis, clavatis, longe stipitatis intermixta; ovaria ovoidea, cum stigmate sessili, rotundo-discoideo perpallide viridia; inflorescentia mascula a feminea interstitio subnudo, brevissimo separata, ellipsoideo-clavata, $2^1/_2$–3 cm. longa, medio

$^3/_4$—1 cm. crassa, parte basali fertili obconoidea, juvenili sordide albida, partem apicalem sterilem, breviter conoideo-cylindraceam, juvenilem eburneam, apice late rotundatam aequante; staminum thecae breviter oblongae, quam filamentum paullo breviores; stamina inferiora hic illic sterilia; staminodia partis apicalis sterilis elongato-clavata, apice rotundata, lateribus leviter obtuse angulosis.

The description is taken from living specimens cultivated in the Buitenzorg Gardens, flowering June to December 1920.

Ceram (Wahai, Kali Solo, L. RUTTEN's Exploration Commission).

Schismatoglottis calytprata (Rxb.), ZOLL. & MOR., Syst. Verz., 83; MIQ., Flor. Ned. Ind., III, 214; ENGL. & KRAUSE, in Pflzrch, LV (IV, 23 *Da*), Arac.-Philod.-Homal.-Schism., 114; *Sch. longipes*, MIQ., l.c.; SCHOTT, Gen. Aroid., tab. 55; *Calla calyptrata*, RXB., Flor. Ind., III, 514

Judging from the diagnosis given by ENGLER and KRAUSE one should think that this species has the spadix with a dark-coloured masculine inflorescence with black-purple and (or) purple-striped stamens and staminodes. This is really the case in dried specimens and commonly (though not invariably) also in material preserved in alcohol. Although this species seems to be very common in *Malaya* I have up till now not been in the opportunity to examine living specimens but I am inclined to suppose that the spadix has all the portions pale-coloured, since in all the specimens of other species that I have seen in state of nature the inflorescences were pale, the ovaries commonly pale-green, the stigmata dirty-white, and the stamens and staminodes varying between ivory-white and pale-yellow or dirty-white, rarely pale-rosy, -brown or -orange.[1])—According to SCHOTT's plate of Sch. longipes MIQ. quoted above (considered by HOOKER as a distinct species) the feminine inflorescence is provided with few (± 3–6) staminodes (not mentioned in ENGLER and KRAUSE's diagnosis) about as high as the pistils, with a clavate-capitate apex nearly as thick as the ovaries and a relatively slender, stipitiform lower partion.

Forma typica. - *Burma across the Malayan Peninsula and Islands to the Philippines and Papua.*

Forma multimargarita: Inflorescentia feminea cum mascula lactea ad pallide flavida; staminodia inter pistilla numerosa (in specimine examinato ± 100), apice quam ovaria ± 2-plo crassiore et pistilla superante.—*Sumatra* (*Deli, Sibolangit*, J. A. LÖRZING No. 5441, 26 November 1917).

Schismatoglottis pseudo-calyptrata, V. A. V. R.

Herba majuscula, usque ± 35 cm. alta, caudice brevissimo. Foliorum petiolus 12—18 cm. longus, relative obscure viridis, basi $^1/_5$—$^1/_3$ longitudinis viridi-vaginatus, antice apicem versus subconcavo-applanatus et

[1]) KOORDERS' No. 23307β from *Java* is provided with a label bearing the words „Flower dirty-white".

angustissime 2-cristatus, ceterum teres; vagina albido-marginata; cristae in venas primarias infimas transientes; lamina relative crasse herbacea, in sicco tenuior, elongato-subsagittato-cordata, 12 – 23 × $3^1/_2$—9 cm., supra obscure viridis, copiose albido-puncticulata, subtus pallide viridis, subglauca, apice subabrupte et anguste acuminata, leviter falcato-curvata, graciliter apiculata, basi lobis semioblongo-triangularibus, $^3/_4$—3 × 1 – 4 cm., sinu acuto vel rectangulari separatis, apice obtuse rotundatis; venae iis Sch. calyptratae Z. & M. similes. Pedunculus ± 5 cm. longus. Spathae tubus obconoideo-ovoideus, 3 cm. longus, 1 cm. amplus; lamina . . . Spadix + 5 cm. longus; inflorescentia feminea elongato-conoidea, $2^1/_2$ cm. longa, 5 mm. crassa, $^1/_2$ parte basali spathae adnata, apice sublaxiflora, ceterum staminodiis pluribus, sparsis, capitato-clavatis, longe stipitatis, quam pistillis non vel vix altioribus munita; ovaria oblonga, apice leviter lageniformi-attenuata; stigma sessile, discoideum, quam apex ovarii haud latius; inflorescentia mascula femineae subcontigua, $2^1/_2$ cm. longa, parte basali fertili obconoidea, 16 mm. longa, apice 5 mm crassa, basi staminodiis pluribus, depresso-prismaticis, subdiscoideis munita, parte apicali sterili semiellipsoidea, 9 mm. longa, basi fere 7 mm. crassa, apice late rotundata; antherae thecis breviter cupuliformibus, quam filamentum paullo brevioribus, extus sulcatis, apice truncatis, vix annuliformi-incrassatis; staminodia partis sterilis subprismatica, apice rotundato-truncata, irregulariter et obtuse angulosa.

The description of the leaves is taken from a living plant cultivated in the Buitenzorg Gardens, of the flower from alcohol material of the same plant.

Borneo (NIEUWENHUIS No. 266).

Schismatoglottis calyptratoides, V. A. V. R.

Herba usque ± 30 cm. alta, caudiculo brevi. Foliorum petiolus ± 10—15 cm. longus, sursum obscure, deorsum pallidius viridis, a basi ad medium usque vaginatus, ceterum antice plano-concavus et 2-cristatus, inter et extra cristas graciliter, longitudinaliter rugulosus; vagina pallide viridis, contra lucem conspecta obscurius punctata, apice rotundato-acuta; cristae horizontales, anguste aliformes, pallide virides, in venas primarias inferiores laminae transientes; lamina herbacea, elongato-cordata, $12^1/_2$—$17^1/_2$ × 5—$8^1/_2$ cm., supra obscure viridis, copiose albido-puncticulata, subtus glauca, lobo antico apice beviter acuminato, breviter apiculato, lobis posticis semiorbicularibus vel obtuse triangularibus, ± 1 – $2^1/_2$ × 2 – 3 cm., sinu acuto vel rectangulari separatis; venae iis Sch. calyptratae Z. & M. similes. Pedunculus + $7^1/_2$ cm. longus, viridis, copiose, graciliter, longitudinaliter rugulosus, rugulis copiose albido-puncticulatis. Spatha + 9 cm. longa; tubus oblique elongatus, $3^3/_4$ cm. longus, 1 cm. amplus, viridis, longitudinaliter venosus, inter venas copiose, graciliter, longitudinaliter rugulosus, rugulis copiose albido-puncticulatis; lamina conoideo-fusiformis, $5^1/_4$ cm. longa, quam tubus paullo amplior, acuminata, pallide viridis, obscurius

longitudinaliter venosa, inter venas copiose, pallidius puncticulata. Spadix ± $6^1/_2$ cm. longus; inflorescentia feminea conoideo-cylindracea, $3^1/_4$ cm. longa, $7^1/_2$ mm. crassa, in dorso a basi fere ad medium usque cum spatha connata, apice leviter laxiflora, a basi usque ad apicem staminodiis pluribus (± 25—35), sparsis munita; ovaria oblonga, pallide viridia, subalba, apice in stylum brevissimum crassumque contracta, stigmate discoideo, quam stylo paullo crassiore, rotundato, concolore coronata; staminodia quam pistilla paullo longiora, capitata vel clavato-capitata, albida, longe stipitata; inflorescentia mascula femineae contigua et equilonga, 9 mm. crassa, elongato-ellipsoideo-clavata, parte basali fertili obconoidea, $1^3/_4$ cm. longa, pallide brunnescenti-flavida, subalba, parte apicali sterili breviter conoideo-cylindracea, $1^1/_2$ cm. longa, pallide sulfurea, subalba, apice rotundata; antherae filamenta ± aequantes, thecis cupuliformibus, apice truncatis; staminodia cuneato-prismatica, apice subrotundato-truncata, obtuse angulosa.

The description is taken from a living specimen of unknown origin, cultivated in the Buitenzorg Gardens.

Schismatoglottis Treubii, ENGL., in Pflzrch, LV (IV, 23 *Da*), Arac.-Philod.-Homal.-Schism., 119, fig. 73.

A specimen of an unknown habitat, cultivated in the Buitenzorg Gardens, determined by ENGLER, is distinguished from ENGLER's diagnosis by the following characters: Petiole green, sheathing $^1/_4$—$^1/_2$ its length; sheath soon dilacerated; lamina 30—45 × $17^1/_2$—25 cm., above dark-green, beneath pale-green, the postical lobes $^1/_5$—$^1/_4$ as long as the antical one; primary veins 15—20 on a side; peduncle $7^1/_2$—10 cm. long; spathe 15—20 cm. long, the tube ovoid-oblong, 5—6 cm. long, 2—3 cm. diam., pale-green, the lamina subcylindrical when convolute, 10—15 cm. long, $1^1/_4$ cm. diam., yellowish, the apex conoid-acute or -acuminate; spadix $12^1/_2$ cm. or more long; feminine inflorescence subconoid; ovaries pale-green; stigma discoid, pale-brown-yellow; staminodes elongate-obconoid with a thickened, white or rosy apex; interstice between the feminine and masculine inflorescences $1^1/_2$—2 cm. long, pale-green, the base beset with crowded white or rosy staminodes, for the rest with scattered, very small, white neuter organs; masculine inflorescence with the fertile portion cylindraceous, $3^1/_2$—4 cm. long, 8 mm. thick, dirty-white, the sterile portion conoid-cylindraceous, $4^1/_2$—6 cm. long, 1 cm. thick, ivory-white, the apex bluntish; staminodes of fresh material provided at the apex with glittering, iridescent points, the higher much thicker than the others. (Forma viridipes).

Schismatoglottis latifolia, MIQ., Flor. Ned. Ind., III, 214; ENGL. & KRAUSE, in Pflzrch, LV (IV, 23 *Da*), 117; *Sch. rupestris*, ZOLL. & MORR., Syst. Verz., 77; ENGL., in ENGL. & PRANTL, Nat. Pflzfam., II^3, fig. 84; *G*; — var. rubescens, ENGL., ENGL. & KRAUSE, l. c., fig. 71 (the spadix not quite correct); *Sch. rubescens*, ENGL., MS.

Plants occurring in the Buitenzorg Herbarium or cultivated in the Buitenzorg Gardens are distinguished from ENGLER's diagnosis and figure as follows: Petiole to 25—50 cm. long, green, sheathing $^1/_4$ — $^1/_2$ (commonly $^1/_3$) its length, for the rest flattish or slightly canaliculate on the anterior side throughout or in the upper part, occasionally narrowly or acutely 2-marginate; sheath scariose, caducous; lamina dark-green above, pale-green beneath, with the basal lobes separated by an obtuse or acute sinus; primary veins less numerous (to 10—15 on a side) in the smaller leaves. Spathe with the tube $2^1/_2$—5 cm. long, $^3/_4$—2 cm. diam., green; lamina conoid-fusiform, 6—12 cm. long, yellowish or yellow-green. Spadix with the feminine inflorescence conoid, the lower $^1/_3$—$^1/_2$ connate with the spathe, 2—4 cm. long, $^3/_4$—1 cm. thick; ovaries pale-green, ovoid or oblong; stigma discoid, very pale-green; staminodes among the ovaries present, a few ones scattered here and there but several to many others more or less crowded at the base of the feminine inflorescence, about as high as the ovaries, capitate, white, on a long and relatively thick stalk; masculine inflorescence conoid-fusiform, 4—8 cm. long, $^1/_2$—1 cm. thick, separated from the feminine by a conoid interstice $^3/_4$—1 cm. long, provided with scattered, solitary or 2—4-nate obconoid neuter organs which are white at the thickened apex; fertile basal portion pale-yellow-brown or -grey; sterile apical portion about as long as the fertile or shorter or longer, ivory-white to pale-yellow-orange, bluntish; thecae commonly longer than the filaments; staminodes subprismatical, the apex truncate, irregularly 3—6-angular, very slightly depressed in the centre.

Var. rubescens: Leaves, especially the petiole, reddish to purple-brown; lamina with the basal lobes somewhat overlapping or separated by an acute sinus.

There are in the Buitenzorg Gardens 2 beds (XI B; X 21, 51) with totally different plants cultivated both under the name of *Sch. Wigmanii* ENGL. — No. 21, from *Borneo* (NIEUWENHUIS No. 1096) does not agree with the diagnosis of that species and is nearly exactly agreeing with the plant described by me as Sch. Engleriana. — No. 51, from an unknown locality and collector, of which incomplete material gathered formerly has been used by ENGLER for his incomplete description of *Sch. Wigmanii* and of which complete material has been gathered recently by myself, proves that *Sch. Wigmanii* ENGL. is but a form of Sch. latifolia MIQ.; it is distinguished from the variety rubescens in having the petiole less distinctly reddish and the basal lobes of the lamina often distinctly though not much overlapping.

Schismatoglottis Nieuwenhuisii, ENGL., in Pflzrch, LV (IV, 23 *Da*), Arac.-Philod.-Homal.-Schism., 112 p. p., fig. 69.

This specific name includes 4 totally different species of which not a single one agrees exactly with the entire diagnosis and figure given by ENGLER.

Of the plants gathered in *Borneo* by NIEUWENHUIS (No. 1485) and WINKLER (No. 2199, of which the Buitenzorg Herbarium possesses only a duplicate) the former is too young for a thorough examination. Nevertheless it can easily be made out that the said former, on which ENGLER based the specific name, is a . . . . . Homalomena, probably of the affinity of H. sagittifolia JUNGH. or a form of a it. WINKLER's original No. 2129, occurring in the Berlin Herbarium, is unknown to me, but the Buitenzorg duplicate resembles in my opinion very much a plant cultivated in the Buitenzorg Gardens under the name of Sch. novo-guineensis N. E. BR.; it is distinguished by its maculate leaves, whilst in Sch. Nieuwenhuisii ENGL. the leaves are immaculate.

There are in the Buitenzorg Gardens 2 beds (XI B; X 111, 160) with absolutely different Bornean plants cultivated both under the name of Sch. Nieuwenhuissi ENGL. whilst in another bed (XI B; X 113) is a plant of an unknown locality, cultivated under the name of Sch. calyptrata *Z.* & M. var. concolor but agreeing exactly with No. 160. Comparing them with ENGLER's diagnosis and figure quoted above, it seems that No. 160, from an unknown collector, has been the plant used by ENGLER for his diagnosis and figure, and No. 111, collected by NIEUWENHUIS, must be renamed and then the new diagnosis of Sch. Nieuwenhuisii ENGL. will be:

Small herb, to about 35 cm. high, with a short caudex. Petiole 10—30 cm. long, dark-green, minutely longitudinally pale-puncticulate-striate, sheathing about $^1/_5$ its length, the upper part flat or somewhat canaliculate on the anterior side; sheath relatively broad, rounded at the short, free apex, dark-puncticulate when seen towards the light; lamina herbaceous, subtriangular-oblong-cordate, 15—25 × 6—15 cm., the upper surface dark-green, immaculate, very copiously and minutely albido-puncticulate, provided here and there with indistinct pale stripes between the veins when seen towards the light but more distictly in dried material; antical lobe relatively suddenly acuminate and shortly apiculate; postical lobes subtriangular, $1^1/_2-6 \times 2^1/_2-6$ cm., separated by a subrectangular sinus, the apex blunt or rounded; primary veins about 10—12 on a side, the basal ones radiating, the costal ones ascending, upcurved; secondary and tertiary veins growing gradually finer. Peduncle 5—15 cm. long. Spathe with the tube obconoid-fusiform, 5 cm. long, $1^1/_4$ cm. diam.; lamina 7 cm. long, shortly acuminate. Spadix $\pm 7^1/_2$ cm. long, feminine inflorescence cylindraceo-fusiform, $^3/_4$ cm. thick, the lower half dorsally connate with the spathe; ovaries oblong; stigma subsessile, pulvinate, thick, broad; staminodes among the pistils several, $1^1/_2 \times$ as long as these, thick-obconoid-clavate, long-stalked; masculine inflorescence separated from the feminine by close rows of short-oblong neuter organs; fertile lower portion elongate-obconoid, $1^3/_4$ cm. long, $^3/_4$ cm. thick at the apex; sterile apical portion conoid-oblong, a little shorter than the fertile portion and at the base a little thicker than it; anthers with the thecae shortly cupuliform, shorter than the fifaments, the apex ring-shaped, truncate;

staminodes elongate-oblong, the lower rotundate, the higher rounded at the apex, and all minutely 3—9-pitted at the tip.

The description of the leaves is taken partly from fresh, partly from dried material, of the flower from alcohol material, all from plants cultivated in the Buitenzorg Gardens. — It is to be observed that the alcohol material has the stalks of the lower staminodes, the neuter organs, the filaments, the apices of the anthers and the higher staminodes provided with dark points or shortly longitudinal stripes, as is drawn in ENGLER's figure.

Borneo.

Schismatoglottis Engleriana, V. A. V. R.

Herba robusta, usque $1^1/_2$ m. alta, caudice erecto, crasso. Foliorum petiolus 30—75 cm. longus, pallide viridis, copiose, longitudinaliter obscurius striatus, basi $\pm$ $^1/_3$ vaginatus, parte superiore semiteres, ceterum teres; vagina persistens, apice breviter libero acuta; striae petioli longae, vaginae brevissimae; lamina herbacea, oblongo- vel ovato-cordata, 20—35$\times$10—$22^1/_2$ cm., supra saturate viridis, immaculata, epuncticulata, subtus pallide viridis; lobus anticus apice abrupte, brevissime acuminatus, relative longe et crasse apiculatus; lobi postici obtuse triangulares vel semiovales, 3—10$\times$$3^1/_3$—10 cm. sinu angusto vel acutangulari separati, apice obtusi vel rotundati; venae primariae 13—16 utrinque, basales radiantes, costales ascendentes, sursum arcuatae, fere omnes venis secundariis 1—2 utrinque ramosae; venae secundariae, tertiariae quaternariaeque sensim graciliores. Pedunculus 15 cm. vel plus longus, pallide viridis. Spathae tubus conoideo-ovoideus, 6—$7^1/_2$ cm. longus, $1^1/_2$—2 cm. amplus, pallide viridis, obscurius longitudinaliter striatus; lamina pallide flavida, longitudinaliter impresso-striata. Spadicis inflorescentia feminea conoidea, 4—6 cm. longa, 1—$1^1/_2$ cm. crassa, $^1/_3$ parte basali cum spatha connata; ovaria oblonga, pallide viridia, staminodiis 2-plo longioribus, longissime albo-stipitatis, apice obconoideo-clavatis, flavidis copiose intermixta; stigma rotundo-discoideum, sessile, viridescenti-albidum; inflorescentia mascula feminenae contigua, flavida; pars basalis fertilis obconoidea, 2—4 cm. longa, apice 1—$2^1/_2$ cm. crassa; pars apicalis sterilis breviter oblongo-conoidea, $1^1/_2$—2 cm., longa, basi quam pars fertilis paullo crassior; stamina thecis elongato-cupuliformibus, quam filamentum non vel paullo longioribus, apice plus minusve oblique truncatis; staminodia partis apicalis sterilis obpyramidata, subprismatica, apice truncata, obtuse 3—6-angulosa, concava.

The description is taken from living and dried material besides alcohol material of a specimen cultivated in the Buitenzorg Gardens, flowering June 1920. The alcohol material has the spadix becoming at length equally dark-brown, nearly black, without dark points or stripes on the different organs. — Distinguished by the many very long staminodes of the feminine inflorescence.

Borneo (NIEUWENHUIS No. 991).

Schismatoglottis maculata, V. A. v. R.

Herba ± 40—50 cm. alta, caudice in specimine 1 cm. longo, $^1/_2$ cm. crasso. Foliorum petiolus 20—27$^1/_2$ cm. longus, basi vagina 5—7$^1/_2$ cm. longa instructus, antice specie canaliculatus et cristis 2 anguste aliformibus marginatus; lamina in sicco tenuiter herbacea, elongato-cordata, ± 17$^1/_2$ × 7—8 cm., supra obscura, maculis pallidioribus, irregulariter sparsis ornata, subtus pallidior, lobo antico linea paullo extrorsum curvata apicem relative breviter acuminatum et graciliter apiculatum versus sensim angustata, lobis posticis brevibus, subsemiorbicularibus, 1—1$^1/_2$ × 2$^1/_2$—3$^1/_2$ cm.; venae primariae 12—15 utrinque, apicem versus sursum curvae, apice vena collectiva crassa, intramarginali unitae, basales paullo radiantes, costales basi patentes; venae secundariae tertiariaeque quam primariae sensim graciliores. Pedunculus ± 5 cm. longus. Spatha ± 6 cm. longa; tubus ovoideo-fusiformis, 2 cm. longus; lamina conoideo-fusiformis, 4 cm. longa, acuminata. Spadix ± 4 cm. longus; inflorescentia feminea elongato-fusiformis, 2 cm. longa, 4 mm. crassa, basi obliqua, apice gracilis et laxiflora; ovaria oblonga vel ovata; stigma sessile, crasse pulvinuliforme; staminodia sparsa, pistilla aequantia, graciliter cylindracea, apice paullo globoso-capitato-incrassata; inflorescentia mascula clavata, femineam ± aequans, parte basali fertili obconoideo-turbinata, a basi apicem versus linea paullo introrsum curvata sensim in partem apicalem sterilem, aequilongam, ellipsoideam, 5 mm. crassam, basi truncatam, apice rotundatam transiente; staminum antherae filamenta aequantes; thecae apice oblique truncatae, connectivo superatae; partis sterilis superioris staminodia elongato-ellipsoidea, inferiora apice rotundato-truncata, superiora apice obtusiuscula ad acutiuscula.

Plants cultivated in the Buitenzorg Gardens, probably gathered by NIEUWENHUIS (No. 1286), flowering August 1920, agree with this with the following exceptions: Leaves with the petiole shorter than the lamina; lamina smaller, 10—15 × 4—6 cm., with the upper surface relatively dark-green, the spots pale-grey-green, the under surface pale-green; peduncle, spathe and spadix proportionally smaller; spadix 3 cm. long; feminine inflorescence 1$^1/_2$ cm. long, pale-green; masculine inflorescence with the fertile basal portion $^3/_4$ cm. long, dirty-white (rather pale-brown-yellowish), the sterile apical portion as long, pale-brimstone-coloured, characterized by the subacute highest staminodes.— The smaller dimensions may be due to the conditions in which the cultivated plants are placed.

Near Sch. neo-guineensis N. E. BR.

Borneo (*Hajoep*, in forest, H. WINKLER No. 2199 p. p.? May 1908; erroneously referred by ENGLER to Sch. Nieuwenhuisii ENGL.).

Schismatoglottis neo-guineensis (LIND.), N. E. BR., in Gardn. Chron., 2nd Ser., XXIV, 776; *Sch. novo-guineensis*, N. E. BR., ENGL. & KRAUSE, in Pflzrch, LV (IV, 23 *Da*), Arac.-Philod.-Homal.-Schism., 113; *Colocasia neo-guineensis*, LIND., *Hort.*; LIND., in Ill. hort., XXVII, 68, tab. 380; XXVIII, 60, fig. C.

A specimen occurring in the Buitenzorg Gardens, formerly cultivated under the name of *Sch. calyptrata* Z. & M. *var. maculata forma albido-maculata*, is distinguished from the diagnosis given by ENGLER and KRAUSE in having the leaves with the petiole about as long as the lamina, the lamina 2—2$^1/_2$ × as long as broad, with the spots of the upper surface pale-green or pale-yellow-green, with the basal lobes subsemiorbicular or rotundate-triangular, the primary veins 12—15 on a side, the spadix with the feminine inflorescence without or with very few slender staminodes which are about as long as the ovaries and slightly clavately thickened at the apex, the masculine inflorescence with the fertile and sterile portions somewhat longer, the staminodes subprismatical-obpyramidal, with the apex obtusely angular, truncate, more or less distinctly concave at the centre, especially in the higher ones.

Schismatoglottis acutangula, ENGL., in Pflzrch, LV (IV, 23 *Da*), Arac.-Philod.-Homal.-Schism., 110.

If the plant now cultivated in the Buitenzorg Gardens under this name, flowering May 1920, is the same as that on which ENGLER based this species, the description will be as follows:

Relatively small herb with a very short caudex. Leaves with the petiole shorter than the lamina, 6—10 cm. long, sheathing $^1/_5$—$^1/_3$ its length, dark-green, the anterior side flattened, rather slightly canaliculate, acutely and narrowly 2-cristate-marginate, the crests passing gradually into the lowest primary veins; lamina firm-herbaceous, thinner when dry, elongate-cordate, ± 10—18 × 3$^1/_2$—6$^1/_2$ cm., the upper surface rather saturate-green, laxly and minutely pale-puncticulate, glaucous-grey-green towards the subfalcate, acuminate, apiculate apex, provided with a pale-grey-green, lacerated stripe on each side of and close to the green costa, the stripes laxly verruculose-puncticulate, the under surface pale-green, subglaucous, the base cordate-emarginate, with the lobes semiorbicular or bluntly deltoid, $^1/_2$—1$^1/_2$ × 1$^1/_4$—3 cm., separated by an acute or subrectangular sinus; primary veins 12—14 on a side, prominent beneath, the basal ones horizontal to radiating, strongly upcurved, the costal ones ascending, connected at the apex by an intramarginal, prominent collective vein; secondary and tertiary veins finer. Peduncle ± 4$^1/_2$ cm. long, green. Spathe with the tube obliquely ovate, ± 2 cm. long, 1 cm. diam., green, slightly longitudinally veined and pale-puncticulate, the base very oblique; lamina conoid-ovoid, 4 cm. long, 1$^1/_2$ cm. diam, yellowish-green, longitudinally veined, the apex gradually acuminate. Spadix ± 3$^1/_2$—4 cm. long; feminine inflorescence conoid, ± 1$^1/_2$ cm. long, $^1/_2$ cm. thick, without staminodes, the lower half or nearly the lower half connected with the spathe; ovaries ovoid, oblong or obovoid, often obtusely angular when seen from above, very pale-green (rather greenish-white); stigma sessile, discoid, pale-green or dirty-white; masculine inflorescence clavate, separated from the feminine by a nudate

interstice ± $^1/_4$—$^1/_2$ cm. long, the fertile basal portion obconoid, ± 1 cm. long, 6—$7^1/_2$ mm. thick at the apex, dirty-white, the lower stamens sometimes sterile, clavate, the sterile apical portion semiellipsoidal, ± $7^1/_2$ mm. long, 6—$7^1/_2$ mm. thick at the base, yellow-white to brimstone-coloured, the apex broadly rounded; stamens with the thecae short or more elongated, somewhat shorter to somewhat longer than the filaments, when young oblong, urceolate-attenuate at the truncate apex, when ripe cup-shaped, the outer side rather grooved; lower stamens sometimes sterile, clavate; staminodes of the upper portion elongate-cuneate, subprismatical, the apex rotundate-truncate, obtusely and irregularly 3-6-angular, with a single depression in the centre.

Forma typica. — *New Guinea* (*Mt. Alkmaar*, DJIBDJA).

Forma staminodiifera: Folia minora; petiolus $4^1/_2$—9 cm. longus, $^1/_3$—$^1/_2$ longitudinis vaginatus; lamina $7^1/_2$—$12^1/_2$ × 3—5 cm.; venae primariae pauciores, 8—11 utrinque. Spadicis inflorescentia feminea pistillis inferioribus staminodiis perpaucis, attenuato-capitatis, longe stipitatis, quam pistillis paullo longioribus intermixtis; interstitium organis neutris sparsis, elongato-clavatis vel obconoideis, albidis munitum; parte apicali sterili staminodiis apice minutissime foveolatis. *New Guinea* (*Mt. Alkmaar*, DJIBDJA; cultivated in the Buitenzorg Gardens, flowering May—June 1920).

Schismatoglottis ornata, V. A. v. R.

Herba foliis nutantibus usque 15—20 cm. alta, caudice perbrevi. Foliorum petiolus ± 6—12 cm. longus, opaco-olivaceus, antice apicem versus applanatus vel leviter concavus, anguste 2-marginatus, ceterum teres, basi brevissime vaginatus; lamina in vivo subcoriacea, in sicco tenuis, lanceolata, ± 9—15 × 2—4 cm., saepe infra medium latissima, supra obscure viridis, opaco-velutina, copiose, minutissime albido-puncticulata, linea albida (non pellucida) angustissime marginata, secus costam viridem vitta pallide griseo-viridi, erosa ornata, subtus pallide viridis, basi rotundato-cuneata, potius acuta, apice longiuscule et anguste falcato-cuminata, apiculata; venae laterales ascendentes, apicem versus sursum curvatea, primariae ± 6—8 utrinque, secundariae, tertiariae quaternariaeque quam primariae sensim graciliores. Pedunculus $1^1/_2$—2 cm. longus, viridis. Spatha ± 3 cm. longa, viridis, apicem versus pallescens; tubus obovoideo-globosus, ± 1 cm. longus et 7 mm. amplus; lamina conoidea, ± 2 cm. longa, a basi 4 mm. ampla apicem acutum versus sensim attenuata, basin versus convoluta, apicem versus leviter hians, marcescens. Spadix sessilis, $2^3/_4$ cm. longus; inflorescentia feminea subconoidea, potius subcylindracea, $^1/_2$ cm. longa, basi 3 mm. crassa, ad basin obliquam et apicem staminodiis 1-seriatis, brevibus, crassis, obpyramidatis, albidis (perpallide flavidis), apice applanatis, irregulariter angulosis munita; ovaria lageniformi-ovoidea, pallide viridia, in apicem longiusculum, subcylindraceo-conoideum, styliformem attenuata; stigma parvum,

rotundum, albidum; inflorescentia mascula subcylindracea, femineae arcte contigua, parte basali fertili ± 8 mm. longa, $2^1/_2$ mm. crassa, supra medium paullo attenuata, pallide griseo-brunnea, parte apicali sterili ± 14 mm. longa, a basi 3 mm. crassa apicem obtusiusculum versus attenuata, albida (perpallide flavida); stamina brevia; thecae quam filamenta breviora; staminodia partis sterilis subprismatica, apice applanata, irregulariter angulosa.

The description is taken from a living specimen cultivated in the Buitenzorg Gardens.

Borneo (NIEUWENHUIS No. 1395).

Schismatoglottis Vanvuureni, V. A. V. R.

Herba parva, + 25 cm. alta, caudiculo brevi. Foliorum petiolus quam lamina brevior, 8—9 cm. longus, pallide viridis, usque ad medium (nunc paullo brevius, nunc paullo longius) vaginatus, antice apicem versus planus vel subcanaliculatus, anguste cristato-2-marginatus, cristis in venas infimas transientibus; lamina herbacea, elongato-lanceolato-cordata, 12—14 × 3—$4^1/_2$ cm., supra saturate viridis, copiose albido-puncticulata, secus costam pallidam vitta pallide griseo-viridi ornata, subtus pallide viridis; apex leviter falcatus, sensim acuminatus, breviter apiculatus; basis late sed non profunde cordata, lobis late triangularibus vel semiorbicularibus, $^3/_4$—$1^1/_2$ × $1^1/_2$—2 cm., sinu subrectangulari separatis, apice obtusis vel rotundatis; venae primariae 9—11 utrinque, basales radiantes, costales oblique ascendentes, apicem versus sursum curvae, basi decurrentes; venae secundariae tertiariaeque quam primariae graciliores. Pedunculus 7 cm. longus. Spathae tubus oblique obovoideus, $2^1/_4$ cm. longus, $1^1/_2$ cm. amplus, pallide viridis; lamina aperta, naviculari-ovoidea, $4^1/_2$ cm. longa, flavido-albida, breviter et acute acuminata. Spadix $4^1/_2$ cm. longus; inflorescentia feminea conoidea, 2 cm. longa, + $^1/_2$ cm. crassa, a basi usque ad medium cum spatha connata, apice sublaxiflora; ovaria oblongo-ovoidea, viridi-albida; stigma sessile, majusculum, discoideum, rotundum, viridi-albidum; staminodia inter ovaria pauca, sparsa, quam ovaria $1^1/_2$-plo longiora, alba, subcapitata, longe stipitata; inflorescentia mascula femineae contigua, clavata, parte basali fertili obconoidea, $1^1/_2$ cm. longa, $^3/_4$ cm. crassa, pallide brunneo-flavida, subalbida, parte apicali sterili semioblonga, $^3/_4$ cm. longa, aequicrassa, eburnea, apice rotundata; antherae contiguae; staminum thecae cupuliformes, quam filamenta paullo breviores ad paullo longiores, apice trancatae; stamina inferiora hinc inde sterilia; partis sterilis superioris staminodia inferiora subprismatica, apice rotundato-truncata, obtuse angulosa, staminodia superiora elongato-clavata, apice rotundata, minute foveolata.

Near Sch. emarginata ENGL. - The description is taken from a living specimen cultivated in the Buitenzorg Gardens, flowering June 1920.

Celebes (*Mt. Taloang*, Capt. L. VAN VUUREN's Exploration Expedition).

Schismatoglottis sublaxiflora, V.A.V.R.

Sch. Vanvuureni V.A.V.R. affinis. — Foliorum lamina elongato-ovato-cordata, venis primariis 11—13 utrinque. Pedunculus 3—4 cm. longus. Spatha brevior, lamina pallide flavido-viridi. Spadix ± 3½ cm. longus; inflorescentia feminea ± 2 cm. longa, sursum distincte laxiflora; pistilla superiora pistillodiis concoloribus, obovoideo-obconoideis, rachidi appressis intermixta; ovaria crasse ovoidea vel obovoidea, apice ± rotundata et in medio abrupte, brevissime styliformi-attenuata; staminodium ad basin inflorescentiae femineae 1 vidi, quam pistillum 1½-plo longius, albidum, graciliter clavatum, basi in stipitem longum sensim transiente; inflorescentia mascula clavata, parte basali fertili elongato-obconoidea, pallide brunneo-flavida, 8 mm. longa, 3 mm. crassa, parte apicali sterili breviter oblongo-ovoidea, 7 mm. longa, supra basin truncatam 5 mm. crassa, pallide sulfurea, apice late rotundata; antherae paullo remotae; thecae breviter cupuliformes, apice truncatae, annuliformi-incrassatae, connectivo paullo superatae. — Ceterum Sch. Vanvuureni similis.

The differences of the dimensions, of course, are practically of secondary importance.— The description is taken from a living plant cultivated in the Buitenzorg Gardens.

Celebes (*Mt. Siseh*, Capt. L. VAN VUUREN's Exploration Expedition).

Schismatoglottis emarginata, ENGL., in Pflzrch, LV (IV, 23 *Da*), Arac.-Philod.-Homal.-Schism., 93 p. p., fig. 59.

This specific name includes at least 3 absolutely different species, of which not a single one agrees with the entire diagnosis and figure given by ENGLER.

The plants gathered in *Borneo* by NIEUWENHUIS (Nos. 393, 420), mentioned by ENGLER, are too incomplete for a positive determination, one of them being sterile and the other bearing only a single fructiferous peduncle; at any rate they do not belong to Sch. emarginata as described and figured by ENGLER, the leaves of both having the lamina not „secus costam vittata" but very distinctly „irregulariter maculata (= irrorata)"; they belong probably either to Sch. pulchra N. E. BR. or to Sch. irrorata ENGL. — The Buitenzorg Herbarium possesses alas no trustworthy material of the said species but I am inclined to refer them to Sch. irrorata ENGL.

There are in the Buitenzorg Gardens 2 beds (XI B; X 15, 155) with totally different plants cultivated both under the name of Sch. emarginata ENGL. — Comparing them with ENGLER's diagnosis and figure quoted above, it seems that ENGLER used one of them (No. 15, from an unknown habitat) and not the other (No. 155, from *Borneo*, NIEUWENHUIS No. 1302) for his description and drawing, since No. 155 has the leaves entirely equally green without any trace of being „vittata" on the upper side. The spadix of No. 15 has the feminine and masculine inflorescences not contiguous but separated by an interstice provided with more or less scattered neuter organs,

as is drawn in the figure. —No. 155 is still undeterminable because of the absence of complete, floriferous material; the leaves, however, agree exactly with those of No. 116 (*Borneo*, NIEUWENHUIS No. 1748, cultivated erroneously under the name of Sch. longicuspis ENGL.), which is a form of Sch. Nieuwenhuisii ENGL., differing from the typical form in having the leaves somewhat narrower and the feminine inflorescence provided with less numerous staminodes.

According to the information given above, the description of Sch. emarginata ENGL. should be modified as follows:

Caudex very short, copiously rooting. Leaves with the petiole $7^1/_2$—15 cm long or even longer, sheathing half its length or more, green, the upper part canaliculate on the anterior side, narrowly cristate-2-marginate, the crests passing into the lowest veins; lamina herbaceous, elongate-ovate-lanceolate, 10—15 × $2^1/_2$—5 cm., the upper surface dark-green, grey-green at the apex, provided on each side of the green costa with a row of mostly confluent, irregular, pale-grey-green spots which are placed closely to the costa or approaching the same, for the rest copiously pale-punctate; under surface pale-green; apex slightly falcate, acuminate, shortly apiculate; base rounded in the smaller leaves, more or less cordate-emarginate in the larger leaves, the lobes at best $^1/_2 \times 1^1/_2$ cm., broadly rounded, separated by a rectangular or very obtuse sinus; primary veins 7—11 on a side, the basal ones subhorizontal or somewhat radiating, the costal ones obliquely ascending, upcurved, decurrent at the base; secundary and tertiary veins finer than the primary ones. Peduncle 3—$3^1/_2$ cm. long, pale-green. Spathe about 4—5 cm. long; tube obconoid-obovate, $1^1/_2$—2 cm. long, $^1/_2$—1 cm. diam.; lamina closed conoid-fusiform, open ovate, $2^1/_2$—3 × $1^1/_2$ cm., yellowish, acuminate. Spadix $2^1/_2$—$3^1/_2$ cm. long; feminine inflorescence conoid, ± 1—$1^1/_2$ cm. long, 3—5 mm. thick, somewhat less than the lower half connate with the spathe; ovaries conoid-ovate, pale-green, the apex shortly styliform-attenuate; stigma sessile, discoid, round, pale-green; staminodes among the pistils few, mostly shorter or sometimes hardly longer than these, scattered, capitate or shortly clavate, white, relatively long-stalked; masculine inflorescence clavate, $1^1/_2$—2 cm. long, $^1/_2$—$^3/_4$ cm. thick, separated from the feminine by a short interstice provided with several, short-oblong, neuter organs; fertile lower portion obconoid, 1—$1^1/_4$ cm. long, dirty-white; sterile apical portion semioblong, $^1/_2$—$^3/_4$ cm. long, not or hardly thicker than the fertile portion, ivory-white, the apex rounded; thecae cupuliform, shorter than the filament, truncate at the apex; staminodes not or hardly longer than the stamens, subprismatical or elongate-clavate, the apex rotundate-truncate or rounded, obtusely angular or roundish, minutely foveolate.

The description is taken partly from living specimens, partly from dried and from alcohol material. The flower, preserved in alcohol, has the stalks of the lower staminodes, the neuter organs and the higher staminodes provided with brownish points or short, longitudinal stripes wanting in the living flower.

Borneo.

Schismatoglottis picta, SCHOTT, in Öst. Bot. Ztschr., VIII, 317; ENGL., in Pflzrch, LV (IV, 23 *Da*), Arac.-Philod.-Homal.-Schism., 114.

Sterile specimens of the typical form, occurring in the Buitenzorg Herbarium, gathered by HALLIER F., mentioned by ENGLER, have the petiole sheathing much less than half its length.

Forma robusta, ENGL., l. c.: Specimens of this form, collected in *Java* and *Borneo*, cultivated in the Buitenzorg Gardens, one of which (Kremboeng) has been determined by ENGLER as *Sch. calyptrata* Z. & M., *var. robusta*, have the petiole sheathing hardly more than $^1/_3$ its length, the spadix with the feminine inflorescence conspicuously laxiflorous at the apex, and the masculine inflorescence occasionally provided with few neuter organs at the base. (? Sch. calyptrata Z. & M., var. ornata).

Schismatoglottis bifasciata, ENGL , in Pflzrch, LV (IV, 23 *Da*), Arac.-Philod.-Homal.-Schism., 107, fig. 66.

An undetermined plant from *Borneo* (NIEUWENHUIS No. 1311), cultivated in the Buitenzorg Gardens, which, for several reasons belongs very probably to this species, is distinguished from the diagnosis and figure given by ENGLER as follows: Petiole green, sheathing about $^1/_3$ its length, terete, the anterior side narrowly sulcate towards the apex, longitudinally rugulose throughout, the lower side smooth; lamina cordate-triangular, subsagittate; the 2 stripes pale, yellowish- or greyish-green, with the base not reaching the margin of the sinus but reaching, and then suddenly ascending along, the lowest veins; primary veins 8—11 on a side; secondary, tertiary and quaternary veins growing gradually finer but the secondary ones not rarely nearly as thick as the primary ones. Spathe and spadix larger; feminine inflorescence conoid, 3—4 cm. long, $\pm$ 7—8 mm. thick, laxiflorous at the apex, provided with several scattered pale staminodes which are about $1^1/_2 \times$ as long as the pistils, obconoid, truncate at the apex, long-stalked; stigmata rather large, as broad as the ovaries, laterally contiguous (except in the upper ovaries); masculine inflorescence elongate, subcylindrical-fusiform, 5—$5^1/_2$ cm. long, 6—8 mm. thick at the middle, about $^1/_2$ as thick at the base and the rotundate apex; fertile basal portion $1^1/_2$—2 cm. long, with the lower stamens intermixed with a few short-oblong or truncate, conoid neuter organs; sterile apical portion $\pm 3^1/_2$ cm. long. — The description of the leaves is taken from the living plant, of the flower from material preserved in alcohol, which has the stalks of the lower staminodes, the higher staminodes, the filaments and the apices of the anthers provided with dark, brown, very short stripes or minute points.

I should be inclined to consider the specimen quoted as a new species were it not that in several cases the plants mentioned by ENGLER in his monograph proved to me to differ much from his diagnoses and drawings.

Schismatoglottis trifasciata, ENGL., in Pflzrch, LV (IV, 23 *Da*), Arac.-Philod.-Homal.-Schism., 106, fig. 65.

NIEUWENHUIS' No. 2120 (*Borneo*), cultivated in the Buitenzorg Gardens, formerly determined by ENGLER but not mentioned in his monograph, is distinguished as follows: Leaves with the petiole shorter than the lamina, 3 — $7^1/_2$ cm. long, sheathing half or more than half its length, dirty-red, or green towards the apex, the anterior side flattened and provided with 2 opposite, horizontally spreading, slightly undulated, red (afterwards green), narrowly wing-like crests passing gradually into the lowest primary veins; lamina when fresh firm-herbaceous, when dry thinner, 7 — 14 × $3^1/_2$ — $6^1/_2$ cm., the upper surface when fresh dark-green, copiously but very minutely pale-puncticulate and foveolate, pale-green at the often falcate-acuminate apex, provided with 4 longitudinal rows of commonly (though not invariably) confluent, pale-grey-green, irregularly lacerated spots, the 2 inner rows placed closely along the green costa, the 2 outer rows about medial between the costa and the margin, minutely verruculose on the spots; primary veins 6—9 on a side. Spathe with the tube to 3 cm. long, olive-green, somewhat darker-striated, copiously but very minutely pale-puncticulate; blade to 6 cm. long, very pale-green, pale-dirty-rosy towards the base, finely, longitudinally striated, red-margined. Spadix $5^3/_4$ — 8 cm. long; feminine inflorescence cylindrical or very slightly conical, to $2^1/_2$ cm. long, to 4 mm. thick, the dorsal side adnate to the spathe except at the oblique apex; ovaries ovate or oblong, pale-green; stigma discoid, very pale-green or dirty-white, slightly 2—3-lobed when young; staminodes clavate or shortly stipitate-obconoid, pale-yellow-brown, partly scattered among the pistils, partly grouped at the apex of the inflorescence, partly arranged in a long row encircling the oblique base of the spadix; masculine inflorescence much elongated; fertile basal portion subcylindrical, to $2^1/_4$ cm. long, to 3 mm. thick at the middle, thickened slightly towards the base and apex and passing gradually into the thicker basal and apical portions of the spadix, pale-rosy (the thecae nearly white, the connective rosy); sterile apical portion elongate-conoid-fusiform, to $5^3/_4$ cm. long, to 4 mm. thick below the middle, narrowed gradually towards the subacute apex, when young rosy-orange, soon pale-orange, finally pale-brown-orange, sometimes nudate at the very apex (destitute of staminodes); staminodes clavate, rounded at the apex, irregularly 4—6-angular when seen from above. — Material of NIEUWENHUIS' No. 1991, occurring in the Buitenzorg Herbarium, has the petiole to 8 cm. long, sheathing $^1/_3$ its length, the lamina to 17 × 9 cm.

Scindapsus roseus, V. A. V. R.

Caudex scandens, internodiis ± 4 cm. longis, 2 mm. crassis. Foliorum petiolus 30—40 cm. longus, fere usque ad geniculum ± 2 cm. longum vel paullo brevius vaginatus; vagina coriacea, a basi apicem versus sensim angustata, decidue scarioso-marginata; lamina in sicco crassiuscula, coriacea,

ovato- vel obovato-oblonga, 20—50 × 15—18 cm., inconspicue inaequilatera, apice abrupte, brevissime aciminata, basi obliqua, inaequilatera, altera leviter cordato-emarginata, altera rotundata vel iate rotundato-cuneata; costa leviter falcato-curvata; venae primariae 15—20 utrinque, basales ± horizontales, superiores erecto-pantentes, medianae patentissimae, supra impressae, subtus conspicue prominentes, apice graciles, sursum curvae, marginem laminae non attingentes; venae ceterae sensim graciliores, tertiariae quaternariaeque vix prominentes. Pedunculus ± 6 cm. longus. Spatha elongato-conoideo-ovoidea, ± 17 cm. longa, in vivo perpallide aurantiaca, apicem versus sensim acutata. Spadix brevissime stipitatus, conoideo-cylindraceus, ± 14 cm. longus, 2 cm. crassus, in vivo roseus, apicem subacutum versus sensim attenuatus; ovaria ± 6 mm. alta, basi compressa, apice ± 3 mm. crassa, plana, ± 6-angulosa, in sicco leviter verruculoso-rugulosa; ovaria superiora sterilia, apice irregulariter angulosa; stylus perbrevis, in cavo centrali saepe immersus; stigma relative latum, rotundum vel subrotundum (latissime oblongum), aurantiacum, apice applanatum.

Sumatra (*Mt. Merapi*, in forest, alt. 1200 m., H. A. B. BÜNNEMEIJER No. 5058, 6 October 1918).

Scindapsus splendidus, V. A. V. R.

Planta robusta, usque ad ± 8 m. alte scandens, caudice ± 8 cm. crasso. Foliorum petiolus usque 90—100 cm. longus, usque ad geniculum 6—8 cm. longum vaginatus; lamina in sicco coriacea, relative crassa, subovato-oblonga, usque 90—100 × 45—50 cm., apice obtusiuscula, vix acuta, basi inaequilatera, altera late subcordato-emarginata, altera late rotundata vel latissime rotundato-cuneata; venae primariae complures, usque 30—40 utrinque, superiores suberectae, basales sensim horizontales, crassae, apice sursum arcuatae, subtus valde prominentes, supra impressae; venae secundariae nunc venis primariis, nunc venis tertiariis subsimiles; venae tertiariae quaternariaeque sensim gracillimae. Pedunculus ± $12^1/_2$ cm. longus. Spatha elongato-conoideo-ovoidea, 20—25 cm. longa, primum pallide flavido-viridis, postremo . . . , acuta, persistens. Spadix brevissime stipitatus, elongato-conoideo-cylindraceus, usque $17^1/_2$—20 cm. longus, floriferus 2—$2^1/_2$ cm., fructiferus usque $3^1/_2$ cm. crassus, obtusus; ovaria usque $^3/_4$ cm. alta, basi compressa, apice 6-angulosa, pallide caeruleo-viridia; stylus conoideus, fere 2 mm. altus, pallide brunneus; stigma crasse pulvinatum, latitudinem apicis styli aequans, rotundum vel subrotundum; baccae ovariis subsimiles sed paullo majores; semen erectum, elongato-obovatum, funiculo laterali.

Sumatra (*Deli, Sibolangit*, in primeval and secondary forest, alt. 500 m., J. A. LÖRZING No. 5277, 18 September 1917).

Scindapsus suffruticosus, V. A. V. R.

Planta suffruticosa, stolones breviter repentes, apice ascendentes, 20 cm. altos, foliis inclusis usque 75 cm. altos emittens. Foliorum pe-

tiolus 15—27$^1/_2$ cm. longus, canaliculatus, usque vel fere usque ad geniculum ± 1 cm. longum vaginatus; vagina scarioso-coriacea, partim decidua, partim persistens; lamina coriacea, oblanceolata, ± 30—36 × 8—12 cm., paullo supra medium latissima, non valde inaequilatera, basi acuta, apice acuminata, breviter canaliculato-apiculata; venae ascendentes, apicem versus sursum curvae, in sicco utrinque prominentes, supra non valde, subtus distincte diversae; venae primariae usque 10—14 utrinque, venis secundariis tertiariisque gracilioribus, plerumque 5—7 interpositis. Pedunculus 12$^1/_2$ cm. longus vel forsitan longior. Spatha primum pallide viridis, demum pallide flavida, caduca. Spadix brevissime (vix) stipitatus, cylindraceus, 5—7$^1/_2$ cm. longus, apice rotundatus, florifer pallide viridis ad pallide flavidus, 1$^1/_4$ cm. crassus, fructifer crassior; ovaria basi compressa, sursum prismatica, 4 mm. longa, in sicco apice peltato-incrassata, 6-angulosa, 1$^1/_2$—2 mm. crassa, applanata, acute marginata, inter stylum et marginem verrucis rotundis, hic illic confluentibus munita (fig. z a); ovaria suprema sterilia; stylus parvus, breviter et crasse conoideus; stigma perparvum, oblongum vel hic illic rotundum vel punctiforme; baccae quam pistilla paullo longiores, medio ventricoso-incrassatae; semen oblique obovoideo-oblongum, erectum, leviter curvatum, ad funiculum lateraliter affixum. (Fig. z b).

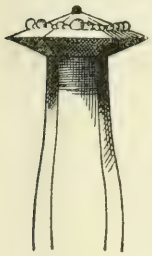


Fig. z a.

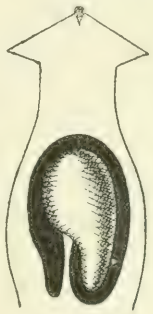


Fig. z b.

Sumatra (*Deli, Sibolangit*, on dry mountain ridge in open forest, alt. ± 400 m., J. A. LÖRZING No. 5543, 6 March 1918).

Scindapsus cuscuaria (AUBL.), PR.; V. A. v. R., this Bull., I^5, *1920*, 388.

The separation of Sc. cuscuaria PR. and Sc. marantifolius MIQ. in my previous paper on Malayan Araceae, quoted above, was based on a comparison of the plants of the Buitenzorg Herbarium, determined several years ago by ENGLER as Sc. cuscuaria.

Another plant, recently gathered in *Java* (*Preanger Regencies*, R. C. BAKHUIZEN VAN DEN BRINK No. 3067), has given me cause to a new comparison and now I am inclined to consider all the Javanese plants determined as Sc. cuscuaria as really distinct from our single Amboinese one which may represent the typical form of Sc. cuscuariia PR.

The said Amboinese specimen (BOERLAGE No. 514, not 574 as is mentioned in ENGLER's monograph) consists of 1 small and 2 large leaves besides a fructiferous spadix and is distinguished from my previous diagnosis quoted above as follows: Leaves with the petiole to 40 cm. long, the sheath coriaceous, persistent; lamina chartaceous, relatively thin, ovate, about 2 × as long as broad (20 — 40 × 11 — 21 cm.), broadest at about $^1/_3$ above the base, the base obliquely, broadly rounded; costa beneath more or les

keeled, of the same colour as the lamina; veins when dry very distinct on both sides, fine but prominent, the primary and secondary ones nearly equal, the former, however, occasionally (few to several on one side or on both sides of the costa) beneath thickened gradually from the apex towards the base. Spadix at length about 15 cm. long by 2 cm. thick, with the highest pistils sterile; style very short; stigma oblong, of the higher fertile pistils rather rounded.

Amboina.

Scindapsus marantifolius, MIQ.; V. A. V. R., this Bull., 1[5], *1920*, 388.

The Javanese plants referrible to this species are distinguished from the Amboinese plant mentioned above in having the petiole with the margin of the sheath scariose, dilacerate and deciduous, the lamina coriaceous, somewhat thicker, oblong-ovate, about $2^1/_2 - 3\times$ as long as broad (to 30 $- 45 \times 10 - 17^1/_2$ cm.), broadest commonly in the lower half, occasionally at the middle, the base occasionally obliquely and broadly rotundate-cuneate, the costa beneath when dry rather rounded (semiterete), the veins somewhat less distinct and less prominent but the occasionally thickened primary ones much more thickened in the lower half, the spadix at length about 10 cm. long, the styles varying from very short to distinctly conically elongated (see SCHOTT, Gen. Aroid., tab. 80), which may be due to different circumstances independent from the species, the stigma round or occasionally suboblong.

The living plant has the spadix yellow.

Java.

Scindapsus javanicus, V. A. V. R., this Bull., 1[5], *1920*, 389.

This species, which is surely very neary related to the preceding and may perhaps be considered as a narrow-leaved form of it, is distinguished from it in having the lamina lanceolate, about $4\times$ as long as broad ($25 - 42 \times 6 - 11$ cm.), broadest at or a little below the middle, the base as a rule obliquely rotundate-cuneate, occasionally obliquely rounded; extraordinarily thickened primary veins and elongated styles wanting (in the material in hand).

The living plant has the spathe yellow, soon desiccate and becoming black, caducous, the spadix yellow or pale-orange.

Scindapsus alpinus, V. A. V. R.

Scandens. Ramorum internodia $\pm$ $1^1/_2$ cm. longa. Foliorum petiolus $\pm$ 35—40 cm. longus, canaliculatus, usque ad geniculum $\pm$ $1^1/_2$ cm. longum vaginatus; vagina margine scariosa, dilacerata caduca; lamina coriacea, crassiuscula, elongato-ovato-lanceolata, plus minusve falcato-curvata, $\pm$ 35—$40 \times 8 - 10$ cm., leviter inaequilatera, infra medium latissima, basi oblique rotundata vel uno latere late rotundato-cuneata, apice acuta; costa in

sicco subtus rotundata (semiteres), quam lamina obscurius colorata; venae patentes; venae primariae 8—10 utrinque, supra leviter impressae, subtus distincte prominentes, venis secundariis tertiariisque pluribus, multo gracilioribus, vix prominentibus interpositis. Pedunculus ± $3^1/_2$ cm. longus. Spatha cylindracea, 11 — 12 cm. longa, hians, pallide aurantiaca, acuta. Spadix sessilis, cylindraceus, ± 7 cm. longus et $1^1/_2$ cm. crassus, obtusus; ovaria ± 5 mm. longa, basi compressa, apice applanata, 4 — 6-angulosa, 2 — 3 mm. lata, rosea, ruguloso-verruculosa; stylus brevissimus; stigma relative magnum, planum, late ovale, quam stylus latius, flavidum.

Sumatra (Mt. Merapi, in forest, alt. 1800 m., H. A. B. BÜNNEMEIJER No. 4998, 30 September 1918).

PLANTAE NOVAE VEL CRITICAE EX HERBARIO ET HORTO BOGORIENSI. II.

Auctore J. J. SMITH.

(Tabula 4—10).

Gymnosiphon aphyllum BL. Enum. I (1827), 29; MIQ. Fl. Ind. Bat. III (1855), 615; KDS. Exk. fl. I (1911), 344. (Burmanniaceae). Tab. 4.

Planta florens ad c. 14 cm. alta Rhizoma breve, teres, c. 0.75 cm. longum, squamis erecto-patentibus imbricatis subulatis dense obtectum, radicibus tenuibus ramosis Caulis erectus, tenuis, pauciramosus, plus minusve tortilis, internodiis ad c. 0.6 cm. longis, squamis parvis adpressis ad patentibus triangulis vel late triangulis obtusis vel obtusissimis caulem $^2/_3$ amplectentibus concavis. Pedunculus cauli similis, rectus, ad c. 7 cm. longus, squamis laxioribus, cyma bi- interdum unibrachiata cum flore terminali, brachiis monochasium formantibus, laxe ad c 6floris, rachide flexuosa, tenui, ad c. 4 cm. longa. Bracteae rachidem $^2/_3$ amplectentes, valde cucullato-concavae, suborbiculares, obtusissime apiculatae, ad c. 0.23 cm. longae, superiores decrescentes. Flores patentes, c. 0.46 cm. diam., cum ovario 0.83 cm. longi, pedicello tenui, c. 0.46 cm. longo. Tubus floralis cylindricus, apicem versus attenuatus, c. 0.325 cm. longus, basi c. 0.18 cm., apice 0.125 cm. diam. Sepala 3, divergentia, apice recurvula, suborbicularia, obtusa, c. 0.24 cm. longa, disco ovato convexo, marginibus latis incurvulis valde undulatis. Petala minima, supra antheram inserta, lanceolata, apice vix incurvula, obtusiuscula, convexa, c. 0.08 cm. longa. Antherae 3, petalis oppositae, in c. 0.35 cm. supra tubi basin insertae, sessiles, transversae, c. 0.07 cm. latae, thecis rima transversa in valvas 2 dehiscentibus, connectivo thecis breviore, subovato, obtuso, late subcanaliculato. Ovarium inferum, turbinato-subcylindricum, apice vix constrictum, basi abrupte in pedicellum contractum, c. 0.27 cm. longum, 0.175 cm. diam.; stylus cum stigmatis c. 0.38 cm. longus, ad stigmata c. 0.075 cm. diam.; stigmata divaricata, lata, marginibus incurvis et postice contiguis oblique infundibuliformia, margine antico crassiora, truncata, papillosa. Fructus turbinatus, hyalinus, c 0.24—0.3 cm. longus, fere 0.2 cm. diam., tubo oblique curvulo coronatus.

Java: Megamendoeng. (BLUME). Buitenzorg, Goenoeng Soenarari, 900 -1000 m., in very shady forest. (C. A. BACKER n. 6322, January 1913). Goenoeng Gede near Djasinga, 800—1000 m., on decayed trees and in

leafmould in the forest, abundant in many spots. (C. A. BACKER nrs. 10125, 10256 and 10325, November 1913). Pasir Kempoel, Nirmala, 1100 .,m in forest, many plants. (C. A. BACKER n. 11018, December 1913). Goenoeng Tjipoetih near Tjiampea, in leafmould in forest, many plants. (R. C. BAKHUIZEN VAN DEN BRINK n. 4240, September 1920, without flowers).

Since BLUME this plant had not been met with again, until Mr. BACER found it abundantly in the localities cited above. Like most saprophytes, it probably can be seen only for a short period of time.

„Plant violet, segments of flowers white to violet". (C. A. BACKER).

Description from plants preserved in alcohol.

TAB. 4.

Fig. 1—2. — Plantae $^{1}/_{1}$.— Fig. 3. Basis caulis $^{4}/_{1}$.— Fig. 4. Flos $^{4}/_{1}$.— Fig. 5. Petalum $^{21}/_{1}$.— Fig. 6. Anthera $^{24}/_{1}$.— Fig. 7. Apex styli $^{33}/_{1}$.— Fig. 8. Fructus $^{4}/_{1}$.

Rinorea gaultheriiflora J. J. S. n. sp. (Violaceae). Tab. 5.

Frutex multiflorus. Folia elliptico-oblonga ad lanceolata, longe acuminata, minute mucronulato-serrulata, subtus in nervis tantum parce pilosa. Inflorescentiae axillares, laterales et terminales, paniculiformes, puberulae. Flores nutantes. Corolla suburceolata, petalis ellipticis obtusis. Discus breviter 5lobus. Anthera basi utrinque penicillata, appendice apicali ovato-rhombea, appendice thecarum minuta triangula. Ovarium pubescens.

Frutex, ramulis patentibus, sicco fulve pubescentibus deinde glabrescentibus et lenticellis conspicuis verruciformibus donatis. Folia alterna, brevissime petiolata, elliptico-oblonga ad lanceolata, longe acuminata, plerumque acuta, basi saepissime angustata saepe paulo obliqua obtusa raro subrotundata in foliis minoribus acuta, minute adpresse mucronulato-serrulata, supra glabra basi in costa media tantum tomentella, subtus in nervis praesertim in costa media parce adpresse pilosa et in axillis nervorum perforata barbataque, in utraque parte costae mediae nervis lateralibus c. 9—12 patentibus incurvis intra marginem anastomosantibus, infimis brevissimis approximatisque, omnibus in foliis adultis supra et praesertim subtus prominentibus, dense reticulato-venosa, venis in foliis adultis utrinque prominulis, c. 4.5—16 cm. longa, 1.5—5 cm. lata; petiolus puberulus vel pubescens, c. 0.15—0.375 cm. longus. Stipulae 2, caducae, amplectentes, subulatae ad lineares, concavae, plus minusve ciliatae, interdum dorso ad basin puberulae, c. 0.6—0 9 cm. longae, cicatricem annularem relinquentes. Inflorescentiae numerosae, axillares, laterales et terminales, saepe in ramulis brevibus, foliis novellis synanthae, petiolum multo superantes, pedunculatae, laxe vel plus minusve conferte paniculiformes, secundae, e cymis pluribus brevibus patentibus pedunculatis ad c. 7floris compositae, pedunculo tereti, puberulo, c. 0.3—1.3 cm. longo, rachide subtereti, puberula, c. 2—6.5 cm. longa, pedunculis secundariis ad c. 0.6 cm. longis. Bracteae primariae ad vel saepe supra basin ramulorum, laxe adpressae, ovato-triangulae, acu-

tae, concovae, ciliolatae et dorso saepe plus minusve puberulae, ad c. 0.47 cm. longae, superiores et secundariae minores. Flores nutantes, breviter pedicellati, pedicello cum rachide articulato, tereti, apice vix incrassato, minute patentissime hirtello-puberulo, c. 0.175 cm. longo. Sepala 5, paulo inaequalia, erecta, corolla laxe adpressa, exteriora ovata, interiora subovalia, obtusa, praesertim exteriora minute apiculata, concava, dorso inferne parce patentissime hirtello-puberula, superne glabra, intus glabra, basi excepta minute ciliolata, basi 3nervia, nervis exterioribus supra basin furcatis, c. 0.37—0.47 cm. longa, 0.23—0.28 cm. lata. Corolla suburceolata, c. 0.375 cm. alta, 0.4 cm. diam.; petala 5, sinistrorsum imbricata, erecta, concava, apice recurva, elliptica, obtusa, glabra, 1nervia, c. 0.45 cm. longa, 0.3 cm. lata. Discus cupuliformis, apice dilatatus, breviter et late 5lobus, lobis crenulato-lobulatis extus convexis intus concavis, extus longitudinaliter 5-sulcatus, carnosulus, glaber, c. 0.225 cm. diam., 0.07 cm. altus. Stamina 5, diosi faciei interiori inserta, erecta, fere 0.3 cm. longa; filamenta brevia, crasse subulata sed apice connectivo dorso adnata, apicem thecarum fere attingentia, paulum a dorso compressa, glabra, parte libera c. 0.1 cm. longa; antherae erectae, dorsifixae, introrsae, appendice connectivi obtusangule incurva imbricatae, ambitu plus minusve ovato-rhombeae, c. 0.2 cm. longae, fere 0.1 cm. latae, thecis parallelis, subremotis, apicem versus ampliatis, obliquis, obtusis, basi rotundatis et pilis paucis patentissimis penicillatis, rima longitudinali (in praefloratione) dehiscentibus, parte antica quam posticam manifeste longioribus et apice appendice humili triangula instructis, fere 0.1 cm. longis, connectivi appendice terminali, erecta, obtusangule incurva, leviter recurvula, ovato-triangula, plus minusve quinquangulari, anguste obtusa vel subacuta, late angulato-canaliculata, lateribus intus plus minusve convexa, membranacea. Ovarium ovoideo-globosum, obtusissimum, patentissime pubescens, c. 0.17 cm. altum, 0.15 cm. diam., abrupte in stylum anguste lageniformem basi contractum glabrum apice truncatum c. 0.2 cm. longum contractum. Capsula immatura lateraliter compressa, oblique orbiculari-ovata, puberula, c. 0.8 cm. longa, 0.65 cm. lata, sepalis petalis et disco suffulta, stylo coronata.

Java: Priangan, between Bodjong Lopang and Lengkong, 600 m. in the bush, 1 plant. (C. A. BACKER n. 17003, November 1914). Between Lengkong and Tjitjoeroeg, 600 m., on the edge of a secondary forest, 2 plants. (C. A. BACKER n. 17174, November 1914).

This is the prettiest of the Javanese species and with the largest flowers, which are produced in profusion.

It seems to be very rare as till now only three plants have been met with.

Description from herbarium and materials preserved in alcohol.

"Shrub, 1.5—2 m. high. Calyx white or somewhat greenish, petals pure white, disc greenish yellow, filament white, appendix white with a brownish yellow base, ovary green." (C. A. BACKER).

TAB. 5.

Fig. 1. Ramulus florens $^{1}/_{1}$.— Fig. 2. Pars folii $^{4}/_{1}$.— Fig. 3. Inflorescentia $^{2}/_{1}$.— Fig. 4. Flos $^{6}/_{1}$.— Fig. 5—9. Sepala $^{7}/_{1}$.— Fig. 10. Petalum $^{9}/_{1}$.— Fig. 11. Stamen immaturum $^{17}/_{1}$.— Fig. 12. Stamen adultum $^{12}/_{1}$.— Fig. 13. Pistillum cum disco $^{17}/_{1}$.

Gymnartocarpus triandra J. J. S. n sp. (Moraceae). Tab. 6—8.

Folia cuneato-obovata, saepe brevissime obtuse acuminata, glabra, coriacea, 4.5—9 cm. longa. Stipulae parvae, in unam triangulam connatae. Stamina 3, filamenta crassiuscula. Inflorescentiae ♀ et syncarpia acute conico-echinata.

Arbor ramulis crassiusculis, minute puberulis. Folia alterna, petiolata, obovata, apice rotundata truncato-rotundata vel obtusa, saepe brevissime obtuse acuminata, basi sensim cuneata late cuneata vel obtusa, integerrima, glabra, in utraque parte costae mediae supra leviter canaliculatae subtus obtuse prominentis nervis lateribus c. 6—7 satis patentissimis rectis inter marginem arcuato-anastomosantibus sicco subtus prominentibus, irregulariter reticulato-venosa, firmiter coriacea, c. 4.5—9 cm. longa, 2.8—5 cm. lata, sicco supra nitidula subtus opaca; petiolus longiusculus, teres, apice supra sulcatus, glaber, nitidulus, c. 2—3.2 cm. longus. Stipulae 2, parvae, in unam ntrapetiolarem triangulam concavam dorso bicarinatam puberulam deciduam c. 0.2—0.23 cm. longam omnino connatae. Inflorescentiae axillares, pedunculatae, densissimae. Inflorescentiae ♂ globosae, perianthii segmentorum 2—3 apicibus liberis incrassatis induratis depresse conicis angulatis acutiusculis acutisve initio tuberculatae, c. 3.2—4.2 cm. diam., involucro adpresso in lobos 3—4 late triangulos plus minusve apiculatos concavos parce puberulos crassos partito c. 1.2—1.3 cm. diam. suffultae, pedunculo crassiusculo, tereti, basi apiceque incrassato, minute puberulo, c. 0.7—5.5 cm. longo. Perianthium ♂ intus dense adpresse longe sericeum, stamina arcte includens. Stamina 3, tota c. 0.7 cm. longa; filamenta inclusa, basi vel ultra medium connata, ceterum contigua, glabra, crassa, carnosula, c. 0.45—0.46 cm. longa; antherae exsertae, divergentes, basifixae, extrorsae, ovatae ad ovato-oblongae, obtusae, basi cordulatae, c. 0.24—0.25 cm. longae, connectivo facie interiore convexo-incrassato, thecis rima longitudinali dehiscentibus. Inflorescentiae ♀ subglobosae, perianthii segmentorum 2—3 apicibus basi excepta liberis conspicuis erectis induratis conicis angulatis acutis glabris echinatae, involucro adpresso in lobos c 3 triangulos ad late ovatos obtusos interdum plus minusve apiculatos concavos minute puberulos crassiusculos partito suffultae, intus perianthiis inferne tenuibus superne incrassatis faviformes, sicco c. 3.5 cm. altae, pedunculo valido, tereti, apice incrassato, parce et minute puberulo, nitido, c. 3—4.2 cm. longo. Perianthia ♀ inferne ovarium laxe includentia, superne incrassata et styli partem superiorem arcte adpressa, intus glabra, saepe plurima apice conico non aperto pistillum imperfectum omnino includente sterilia. Ovarium

oblique ovale ad oblique globosum, c. 0.125 cm. longum; stylus inclusus, elongatus, filiformis, cum stigmate conspicuo exserto segmenta perianthii aequante compresso oblique cuneato-flabellato apice irregulariter denticulato c. 0.6 cm. longus. Syncarpium magnum, irregulariter depresse globosum, plus minusve irregulariter lobatum, dense echinatum, echinis (perianthii apicibus) inaequalibus conicis angulatis acutis c. 0.8 cm. longis, c. 13—15.5 cm. diam., 12 cm. altum. Achenia oblique ovoideo-ovalia, c. 2.9 cm. longa, 1.9 cm. diam., pericarpio molliter coriaceo marmorato, endocarpio osseo. Semen oblique ovoideum, c. 1.9 cm. longum, testa membranacea; cotyledones crasse carnosae, inaequales,supra basin arcte applicato-incurvae, subovales, apice abrupte contractae, obtusae, basi angustatae, radicula compressa, lineari, c. 0.6 cm. longa,.

Sumatra: Palembang, Banjoeasin, 20 m., on swampy land. (W. GRASHOFF n. 798, November 1915, ♂ buds only; native name *Koeloes*).

Sumatra's Oostkust: Poeloe Bengkalis, Tamansari, 5 m., in swampy forest. (V. M. A. BEGUIN n. 316, September 1919, male flowers; native name *Tengajoen*). Soengei Missigit, 6 m., in swampy forest. (V. M. A. BEGUIN n. 583, June 1920, male flowers and ripe fruits, native name *Tengajoen*), Sengoro, 4 m., in forest; a few trees. (V. M A. BEGUIN n. 536, December 1919, very young buds).

Till now only two species of *Gymnartocarpus* have been described, viz. *G. venenosa* (ZOLL). BOERL. from Java and Sumatra, and *G. Woodii* MERR. from the Philippine Islands. The latter, however, seems to be only imperfectly known and the almost sterile specimens in the Buitenzorg Herbarium closely resemble *G. venenosa*.

The new species found by Messrs. GRASHOFF and BEGUIN, collectors of the Museum for Economic Botany in Buitenzorg, is well characterized by its much smaller obovate leathery leaves, three stamens with thickish filaments connate below, longer ♀ inflorescences, with the anthocarps much longer and thornlike.

It appears from the notes of the collectors that *Gymnartocarpus triandra* is a large tree, with the trunk 13—20 m. high and 1.6—2.2 m. in circumference and buttresses 0.5—1.4 m. high. Bast 1—2.2 cm. thick, outside brownish yellow, inside yellowish white, with white latex, which in the open soon coagulates and turns light yellow. Crown dense, 15—10 m. high, branches slanting. Male flowers scenting strongly of bran.

The fruits are said to be edible.

Description from herbarium and material preserved in alcohol and formaline.

TAB. 6.

Fig. 1. Ramulus florens $^1/_1$. — Fig. 2. Inflorescentia ♀ $^1/_1$.

TAB. 7.

Fig. 1. Inflorescentiae ♂ $^1/_1$.— Fig. 2. Sectio floris ♂ $^4/_1$.— Fig. 3. Perianthium ♂ intus visum $^4/_1$.— Fig. 4—5. Stamina $^4/_1$.

TAB. 8.

Fig. 1—3. Flores ♀ $^6/_1$.— Fig. 4. Flos ♀ sterilis $^6/_1$.— Fig. 5. Pistillum $^7/_1$.— Fig. 6. Syncarpii sectio $^1/_1$.— Fig. 7. Achenium $^1/_1$.— Fig. 8—9. Semen $^1/_1$. Fig. 10—11. Embryo $^1/_1$.

Phyllanthus acutissimus MIQ. Fl. Ind. Bat. I, 2 (1859), 369; MUELL. ARG. in DC. Prodr. XV, 2 (1866), 419; J. J. S. in KDS. et VAL. Bydr. 12 Booms. Java (Meded. Dep. Landb. no. 10) (1910), 88. — *Scepasma longifolium* HASSK. Cat. Hort. Bog. alt. (1844), 242; in Tijdschr. Nat. Gesch. en Phys. X (1843), 143. — *Diasperus acutissimus* O. K. Rev. gen. pl. II (1891), 598. (Euphorbiaceae).

Frutex vel fruticulus, caule primario folia rudimentaria alterna gerente, ramulis patentibus, teretibus, basi valde incrassatis, parte inferiore rectis et folia rudimentaria gerentibus, superne flexuosis, tenuibus, verruculoso-papillosis, foliatis. Folia alternatim bifaria, brevissime petiolata, oblique ovata vel oblongo-ovata, longe acuminata, acuta, basi late oblique obtusa, plerumque plus minusve late cuneata, integerrima, in utraque parte costae mediae supra subtusque prominentis nervis lateralibus c. 5—6 patentibus curvatis adscendentibus intra marginem anastomosantibus tenuibus supra plerumque impressis subtus prominentibus, reticulato-venosa, membranacea, nitide atroviridia, subtus paulo dilutiora, ad c. 10 cm. longa, 3.8—4.1 cm. lata, infima et summa plerumque minora, novella rubescentia et in costa media subtus praesertim basin versus minute verruculosa; petiolus teres, dense minute verruculosus, fuscescens, c. 0.2—0.25 cm. longus. Stipulae e basi late triangula subulato-acuminatae, c. 0.2—0.23 cm. longae. Inflorescentiae axillares et in ramulorum parte inferiore, fasciculares. Flores c. 0.4 cm. lati, pedicellati, pedicello apice in torum obconicum incrassato, dilute viridi, c. 0.24 cm. longo. Sepala 4, basi erecta et marginibus tegentia, medio fere rectangule recurva, ovata, obtusa, intus valde carinata, carinis apicem versus evanescentibus, carina sepalorum exteriorum inter antherae thecas, carina sepalorum interiorum inter antheras quadrante, dilute flava, margine albida, c. 0.225 cm. longa, fere 0.2 cm. lata, interiora paulo angustiora. Disci glandulae 4, cum sepalis alternantes, minusculae, cordatae, subreniformes, pallide viridi-flavae. Stamina 2, c. 0.18 cm. longa; filamenta in columnam humilem crassam subconicam valde longitudinaliter 4costatam pallidam connata; antherae magnam partem liberae, erectae, parallelae, a dorso compressae, ovato-cordatae, apice obtusae, c. 0.14 cm. longae, connectivo pallide flavescenti, thecis albidis, rima longitudinali laterali dehiscentibus. Flores ♀ bene expansi, c. 0.4 cm. diam., pedicello tenui, tereti, apice in torum obconicum incrassato, minute verruculoso, dilute viridi, basi purpureo-tincto, c. 0.43 cm. longo. Calyx alte 6partitus, biserialis, glaber, pallide

flavus; sepala exteriora late elliptico-orbicularia, obtusa, intus inferne costa longitudinali quam in floribus ♂ minus conspicua instructa, carnosula, tenuiter albido-marginata, c. 0.2 cm. longa, 0.17—0.175 cm. lata; sepala interiora e basi brevissime contracta cuneata, sexangulata, plus minusve acuminata, obtusa vel subacuta, margine excepto carnosula, c. 0.24—0.27 cm. longa, 0.175 cm. lata. Discus cupuliformis, ovario arcte adpressus et multo brevior, 6lobatus, glaber, carnosulus, pallide viridis. Ovarium depresse globosum, conspicue longitudinaliter 6sulcatum, dense verruculoso-papillosum, dilute viride, c. 0.07 cm. longum, 0.12 cm. diam.; styli 3, erecti, paulum divergentes, cuneato-oblongi, apice lato breviter obtuse trilobuli, leviter concavi, dorso convexi, glabri, carnosuli, nitidi, c. 0.075 cm. longi. Capsula calyce viridi suffulta, stylis coronata, depresse globosa, 3loba, coccis sulco longitudinali verisimiliter deinde evanescente instructa, sparse minute verruculosa, viridis, c. 0.375—0.425 cm. alta, 0.55—0.6 cm. diam. pedicello 0.5—0.65 cm. longo.

Java: Batavia, Goenoeng Tjipoetih near Tjiampea, 650 m., in forest, several plants. (R. C. BAKHUIZEN VAN DEN BRINK, n. 4204, fl. and fr. September 1920).

Priangan, Soekaboemi, Bodjonglopang, 600 m., secondary forest, many plants. (C. A. BACKER n. 16937, November 1914). Pasawahan, 525 m., secondary forest, several plants. (R. C. BAKHUIZEN VAN DEN BRINK n. 1702, August 1918). Tjianten, many plants. (R. C. BAKHUIZEN VAN DEN BRINK n. 1655, January 1917). Tjiandjoer, Gekbrong, Goenoeng Kentjana, 1200 m., forest, several plants). C. A. BACKER n. 23238 bis, February 1918). Tjibeber, Tjisokan near Tjidadap, 750 m., forest, not rare. (R. C. BAKHUIZEN VAN DEN BRINK n. 256, August 1916; n. 415, August 1917).

Good specimens enable me to give a new description of this Javanese species.

Breynia Heyneana J. J. S. n. sp. (Euphorbiaceae) Tab. 9.

Frutex glaber. Folia ovata, anguste obtusa, basi rotudata vel obtusa, 2.5—4.75 cm. longa. Flores ♀ breviter pedicellati. Calyx majusculus, ambitu angulato-orbicularis, 6lobatus, convexus, carnosulus, c. 0.5 cm. diam., laciniis brevibus latissimis brevissime acuminatis. Pistillum dolioliforme, stigmatis brevibus, obtusis. Fructus calyce valde convexo suffultus, depresse globosus.

Frutex glaber, ramulis teretibus, sicco minutissime pallide puncticulatis. Folia in ramis primariis rudimentaria, subulata ad triangula, acuta, c. 0.2—0.23 cm. longa, stipulis 2 similibus sed paulo brevioribus latioribusque, oblique

triangulis. Folia in ramulis alternatim bifaria, breviter petiolata, ovata, apicem versus sensim angustata vel leviter acuminata, anguste obtusa, interdum brevissime mucronulata, basi rotundata vel obtusa, integerrima, glabra, nervis lateralibus tenuibus patentibus vel subpatentissimis valde incurvis adscendentibus longe intra marginem anastomosantibus in sicco subtus prominulis paucis venis transversis conjunctis c. 4—6 in utraque costae mediae parte, sicco crasse papyracea, supra opaca nigrescentia, subtus valde opaca glaucescentia, c. 2.5—4.75 cm. longa, 1.45—3.85 cm. lata; petiolus tenuis, supra sulcatus, c. 0.4 cm. longus. Stipulae diu persistentes, recurvulae, obliquae, e basi dilatata triangulae ad subulatae, c. 0.15 cm. longae. Monochasia ♂ in ramulorum ultimorum axillis infimis, brevissima, flores c. 6 et plures gignentia, rachide c. 0.2 cm. longa. Flores ♂ longe pedicellati, macerati c. 0.2 cm. longi et diam., pedicello tenui, c. 0.33 cm. longo. Torus late turbinatus, urceolatus, apice abrupte contractus, breviter obtuse 6lobulatus, carnosus. Sepala 6, ad faucem tori erecta, biserialia, brevia, subsemiorbicularia, brevissime acuminata. Stamina 3, in columnam subsessilem oblongo-cylindricam apice obtosam c. 0.15 cm. longam connata; antherae adnatae, apicem columnae non plane attingentes, oblongae, thecis linearibus. Flores ♀ in axillis ramulorum infimis exceptis solitarii, breviter pedicellati, pedicello c. 0.2—0.25 cm. longo, toro lato. Calyx majusculus, 6lobatus, ambitu angulato-orbicularis, patentissimus, convexus, carnosulus, c. 0.45—0.5 cm. diam., laciniis convexo-recurvis, transversis, brevibus, latissimis, subrotundatis, brevissime acuminatis, tenuius marginatis, c. 0.2—0.24 cm. latis. Pistillum dolioliforme, obtusum, stigmatis 3 brevibus obtusis, c. 0.2 cm. altum, 0.14—0.15 cm. diam. Fructus calyce valde revurvo convexo inexplanato c. 0.55 cm. diam. suffultus, valde depresse globosus, medio trigono-apiculatus et stigmatis 3 brevissimis obtusis coronatus, maceratus totus c. 0.55 cm., absque apiculo 0.48 cm. altus, 0.575 cm. diam., pedicello c. 0.35 cm. longo.

Simaloer. (Native collector ACHMAD n. 315, fl. and fr. March 1918).

Differing from *B. cernua* MUELL. ARG. in the large rather thick convex female calyx and probably also in the form of the fruit.

"Climbing shrub, 6 m. high. Fruit red. Native Name *Tenop-tenop majal*". (ACHMAD).

Named after Mr. K. HEYNE, chief of the Museum for Economic Botany at Buitenzorg.

Description from herbarium material only.

TAB. 9.

Fig. 1. Ramulus florens $^1/_1$.— Fig. 2. Flos ♂ $^{10}/_1$.— Fig. 3. Stamina $^{14}/_1$.— Fig. 4. Flos ♀ $^6/_1$.— Fig. 5. Calyx ♀ dorso visus $^6/_1$.— Fig. 6. Fructus $^3/_1$.

Styrax sumatranus J. J. S. in Tectona X (1917), 204. (Styracaceae). Tab. 10.

Folia ovata, acuminata, subtus incana, omnino lepidibus stellatis minutis adpressis inspersa, nervis lateralibus 6—8 utrinque sicco cinnamomeis, 6—16 cm. longa. Inflorescentiae axillares et terminales, parce paniculatae, pauci-pluriflorae, tomentosae. Calyx altius cupuliformis, minute 5dentatus. Petala in tubum 0.45—0.5 cm. longum connata, valvata, lineari-lanceolata, parte libera 1.1—1.3 cm. longa. Stamina 1.225—1.375 cm. longa; antherae 0.4—0.5 cm. longae, sparse stellato-lepidotae. Ovarium ∞ovulatum. Fructus globosus, calyce cupuliformi adpresso suffultus, 2.7—3.25 cm. diam.

Arbor parva, ramulis teretibus, fulve stellato-tomentosis, indumento diu persistente. Folia alterna, petiolata, ovata ad oblongo-ovata, sensim vel satis sensim longe vel longiuscule et anguste acuminata, anguste obtusa, saepe brevissime et obtuse calloso-apiculata, basi rotundata vel obtusa, interdum brevissime in petiolum contracta, integerrima, adulta supra glabra, subtus nervis et venis majoribus exceptis incana, omnino lepidibus numerosis alte stellatis minutis adpressis fulvis adspersa, in utraque parte costae mediae nervis lateralibus c. 6—8 patentibus curvatis intra marginem anastomosantibus venis transversis numerosis conjunctis utrinque, nervis et venis majoribus subtus prominulis sicco cinnamomeis, supra dense reticulato-venosa, c. 6—16 cm. longa, 2.7—6.4 cm. lata; petiolus subteres, supra canaliculatus, sicco ferrugineo-tomentosus, c. 0.7—1.5 cm. longus. Inflorescentiae axillares et terminales, plerumque parce paniculatae, minores simplices, pauci- ad satis multiflorae, breviter pedunculatae, incano-tomentosae, c. 2—11 cm. longae, ramulis patentibus, usque ad c. 3.5 cm. longis. Bracteae lanceolatae ad subulatae, concavae, costa media dorso prominente, tomentosae, c 0.3—0.7 cm. longae. Flores nutantes, pedicellati, pedicello curvato, tereti, cano-stellato-tomentoso, lepidibus fulvis intermixtis, c. 0.4—0.6 cm. longo, bracteolis subulatis, concavis, tomentosis, c. 0.14—0.3 cm. longis. Calyx corollae adpressus, altius cupuliformis, brevissime obtuse 5dentatus, tomentosus, c. 0.425—0.48 cm. diam., 0.3—0.45 cm. altus. Corolla c. 0.65—0.8 cm. alta, 1.3—1.5 cm. alta, 5partita, carnosa, utrinque sicco albido-stellato-tomentosa, tubo c. 0.45—0.5 cm. longo, laciniis in alabastro oblongo obtuse 5angulato valvatis, deinde revolutis, lineari-lanceolatis, apicem versus angustatis, acutis vel subacutis, intus leviter et late canaliculatis, c. 1.1—1.3 cm. longis, 0.3—0.35 cm. latis. Stamina 10, basi tubo corollae adnata, erecta, contigua, columnam conicam inter filamenta et antheras inconspicue constrictam formantia, alternatim paulo inaequilonga, tota c. 1.225—1.25 ad 1.3—1.375 cm. longa; filamenta linearia, dimidio inferiore corollae adnata, sulcis separata et glabra, parte libera crasse linearia et stellato-tomentosa, tota c. 0.9—1 cm. longa; antherae erectae, filamentum continuae, contiguae, basifixae, introrsae, lineares, apice angustatae, dorso convexae et basin versus tomentosae, c. 0.4—0.5 cm. longae, ihects

parallelis, anguste linearibus, margine sparse stellato-lepidotis, rima longitudinali dehiscentibus. Ovarium superum, liberum, abbreviato-ovoideum, subangulatum, tomentosum, 0.15—0.2 cm. altum, 0.2 cm. diam., triloculare, loculis pluriovulatis; stylus vix exsertus, filiformis, basi subconica tomentosa excepta glaber, c. 1.43 cm. longus, stigmate truncato. Fructus calyce aucto adpresso cupuliformi subtus valde convexo plerumque leviter rumpente tomentoso carnoso c. 1.2 cm. diam. suffultus, semimaturus ovoideo-ellipsoideus, vix apiculatus, maturus plus minusve irregulariter globosus, tomentosus, c. 2.6—2.9 cm. altus, 2.7—3.25 cm. diam., uniloculare, monospermum, pariete crasse et firmiter carnoso, c. 0.55—0.9 cm. diam., intus nitido. Semen erectum, subobovoideo-globosum, basi latum, c. 1.6 cm. altum, 1.5 cm. diam., testa crassa, ossea, albumine copioso, carnoso, embryo recto, cotyledonibus ovali-orbicularibus, tenuibus, radicula cylindrica, truncata.

Sumatra: West coast, Dolok Oetoes, Kampong Sitapongan (Hoeloe Djoeloe), rarely growing wild, often cultivated by the natives; on brownish yellow sticky loam. (A. V. THEUNISSEN, fl. and fr. May 1915; *Kemajan poetih*, mal., *Haminjan nabattar*, bat.). South-west slope of the Dolok Martimbang, Banoe Hadji. (W. VERSLUIJS, July 1916; *Kemajan toba* or *K. poetih*, mal.). Upper Baros, Dolok Goenoeng near Palilitan. (W. VERSLUIJS, fr. September 1916; *Kemajan*, mal.). Mountains between the districts Toba and Habinsaran, Pagar Batoe. (Controller of Toba, fl. and fr. June 1915; *Hamindjan doerame*, bat.). Batang Baros. (J. E. TEYSMANN n. 966 Herb. Bog.; *Kajoe kemajan*, mal.).

This species differs from *S. Benzoin* DRYAND, which is very common in these regions, chiefly in the following details. The indumentum of the lower surface of the leaves is extremely short and appressed; very small scales are to be found on the veins only, whereas in *S. Benzoin* the nerves are more or less pubescent. The anthers are proportionately shorter with small scales scattered along the borders of the cells. The fruits are very characteristic for the species; they are globular with a very thick pericarp and measure 2.7—3.25 cm. in diameter (the smallest fruits were perhaps not wholly developed). The fruiting calyx is more or less cupshaped even when dry, whereas in *S. Benzoin* it is flat or convex in a dry state.

The galls of this species are very curious; Dr. W. M. DOCTERS VAN LEEUWEN will describe them later.

Mr. A. V. THEUNISSEN notes that this plant resembles a nutmeg tree in its habitus.

One tree measured 11.8 m. with a trunk of 25.5 cm. in diameter breast high. The flowers are white with yellow stamens, the fruit gray.

The tree produces, like *S. Benzoin* DRYAND, a kind of benzoin, known as white benzoin. As soon as the production of the resin comes to an end the tree is felled and used for fire-wood.

TAB. 10.

Fig. 1. Ramulus florens $^{3}/_{4}$.— Fig. 2. Pilus stellatus ×.— Fig. 3. Flos $^{2}/_{1}$.— Fig. 4. Floris sectio $^{3}/_{1}$.— Fig. 5—6 Calyces $^{4}/_{1}$.— Fig. 7. Stamina $^{11}/_{1}$.— Fig. 8. Anthera $^{8}/_{1}$.— Fig. 9. Pistillum $^{5}/_{1}$.— Fig. 10. Ovarii sectio transversalis $^{6}/_{1}$.— Fig. 11. Fructus juvenilis $^{1}/_{1}$.— Fig. 12. Fructus maturus $^{1}/_{1}$.— Fig. 13. Idem sectus $^{1}/_{1}$.— Fig. 14. Embryo $^{4}/_{1}$.

Clethra longispicata J. J. S. nom. nov. — *C. elongata* J. J. S. (non RUSBY) in Bull. Jard. Bot. Buit. 3e sér. I (1920), 398.

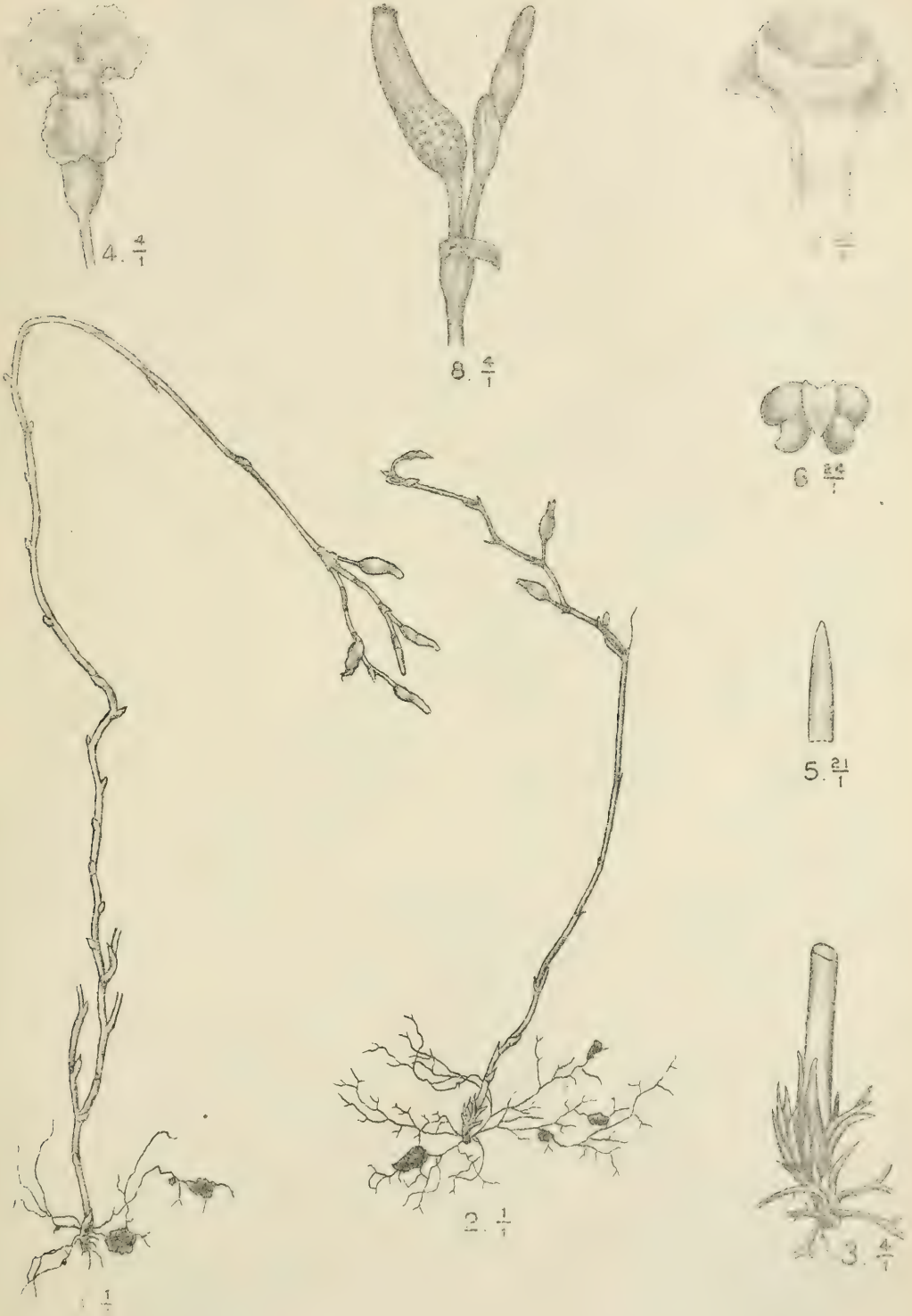
Rhododendron Zollingeri J. J. S. in Ic. bog. IV (1910), 73, t. CCCXXII; in Meded. Dep. Landb. n. 18 (1914), 108; KDS. Exkursionsfl. III, 6.— *Rh. tubiflorum* ZOLL. (non DC.) in MOR. Syst. Verz. ZOLL. 42.

var. **latifolium** J. J. S. n. var.

Frutex, innovationibus c. 2.3—10 cm. longis, inferne cicatricibus 1 vel paucis foliorum rudimentarium notatis, ramulis teretibus, everrucosis, dense lepidotis, glabrescentibus. Folia c. 4—5 spurie verticillata, breviter petiolata, elliptica, apice angustata, obtusa vel subacuta, saepe glanduloso-apiculata, basi acuta vel obtusa, minute crenulata, supra dense subtus densissime impresse lepidota, plus minusve glabrescentia et impresse punctata, in utraque parte costae mediae supra sulcatae subtus apice excepto obtuse prominentis nervis lateralibus c. 6—7 irregularibus patentibus intra marginem anastomosantibus supra insculptis subtus obsoletis, coriacea, sicco supra obscure cinerea, subtus ferruginea, c. 2.4—4.75 cm. longa, 1—2 cm. lata; petiolus latus, creberrime lepidotus, c. 0.2—0.4 cm. longus. Inflorescentiae terminales, c. 5—6florae, ramentis inferioribus semiorbicularibus ad triangulis, concavis, dentatis vel crenatis, dorso lepidotis. Flores parvi, pedicello dense grossius lepidoto, c. 0.9—1.6 cm. longo. Calyx oblique discoideus, suborbicularis, subdentatus, interdum lacinia 1 triangula, dorso lepidotus, c. 0.35 cm. diam. Corolla tubuloso-campanulata, 5loba, extus margine loborum excepto dense lepidota, intus glabra, tubo cylindrico, explanata quadrangula, c. 1.5 cm. longa, 1.2 cm. lata, lobis suborbicularibus, c. 0.37 cm. longis, 0.325—0.35 cm. latis. Stamina 10, c. 0.93—1.1 cm. longa; filamentum lineare, apicem versus paulo angustatum, glabrum; anthera dorsifixa, brevis, curva, obcordata, basi brevi-acuta, c. 0.1 cm. longa, thecis antice sulco separatis, poro magno oblique introrso hiantibus. Ovarium breve, crasse cylindricum, quinquangulare, abrupte obtusum, creberrime adpresse lepidotum, c. 0.4 cm. longum, 0.27 cm. diam.; stylus impositus, brevis, teres, glaber, cum stigmate capitato 5lobo denticulato-manicato c. 0.4 cm. longus. Discus conspicuus, annularis, 10lobus, glaber, c. 0.34 cm. diam.

Celebes: Goenoeng Sinadji. (Expedition L. VAN VUUREN, RACHMAT no. 883, November 1913).

Differs only in the form of the leaves.
Description from herbarium material.

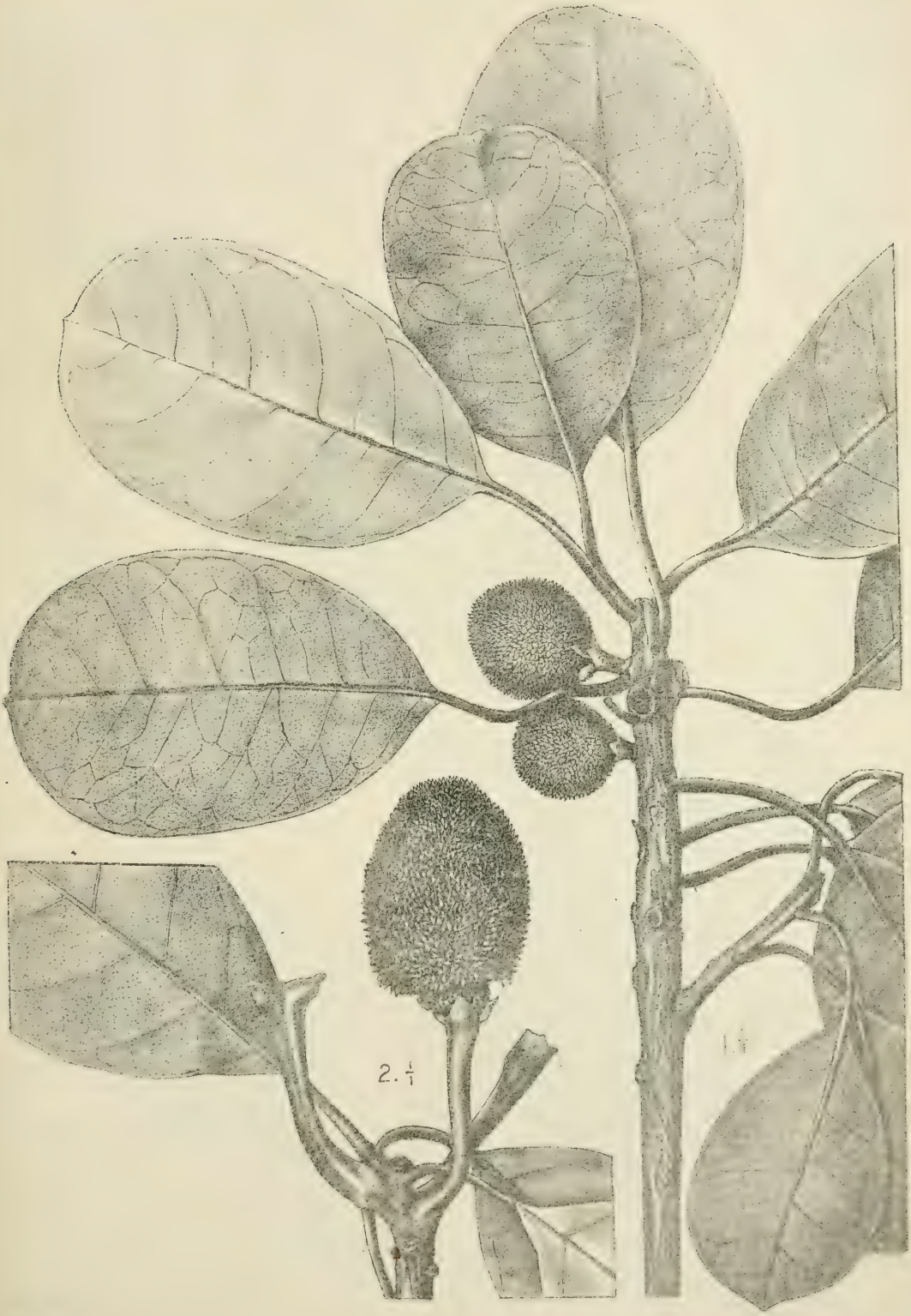


R. Natadipoera del.

Gymnosiphon aphyllum Bl.

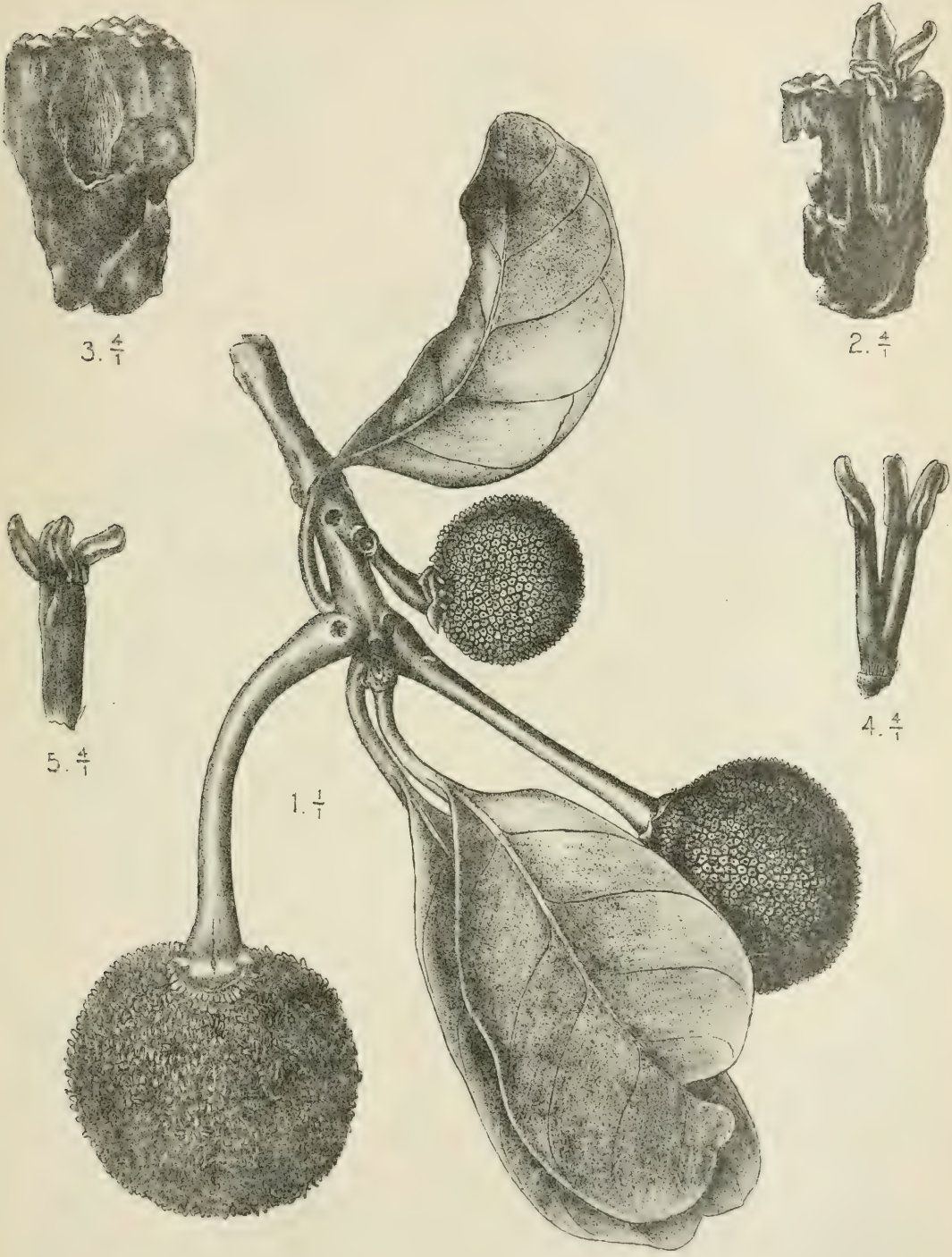
J. J. Smith et Darmosoediro del.

Rinorea gaultheriiflora J. J. S.



Sandiwirio del.

Gymnartocarpus triandra J. J. S.



Sandiwirio del.

Gymnartocarpus triandra J. J. S.

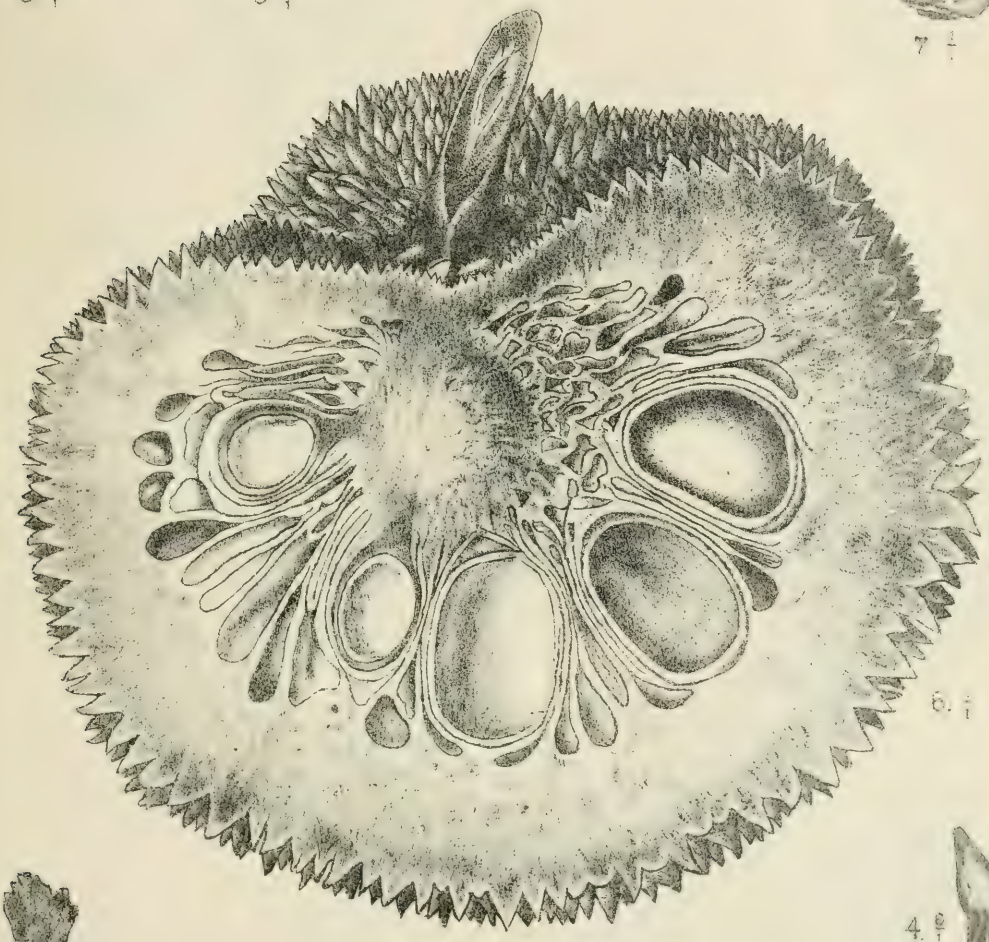
8 $\frac{1}{1}$

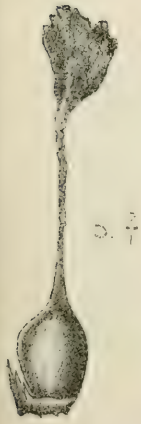
9 $\frac{1}{1}$

10. $\frac{1}{1}$

11 $\frac{1}{1}$

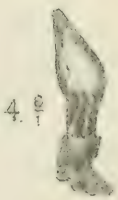
7 $\frac{1}{1}$

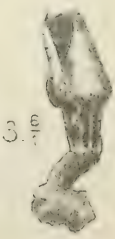

6. $\frac{1}{1}$


5. $\frac{1}{1}$

1 $\frac{6}{1}$

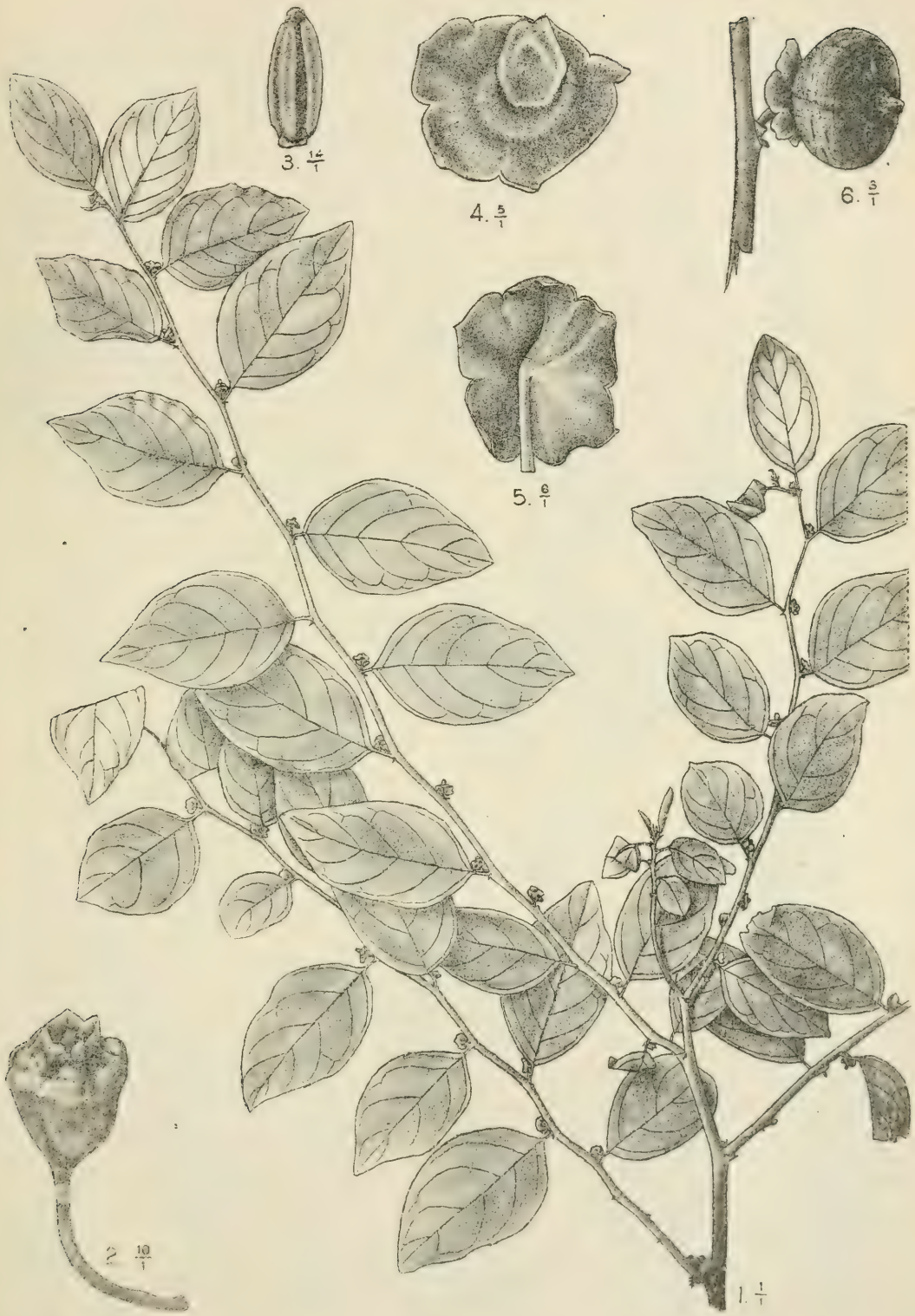
2. $\frac{6}{1}$


4. $\frac{6}{1}$


3. $\frac{6}{1}$

Sandiwirio del.

Gymnartocarpus triandra J. J. S.



Darmosoediro del.

Breynia Heyneana J. J. S.

Darmosoediro del.

Styrax sumatranus J. J. S.

EINIGE BEOBACHTUNGEN BEI CLITORIA TERNATEA L.

von

Dr. A. RANT.

Mit Tafel 11 und 12.

Eine der häufigsten Schlingpflanzen, aus der Familie der Papilionaceen, die man in Niederländisch-Indien im Garten und im Freien antrifft, ist *Clitoria ternatea L.*, auf Java bei den Eingebornen allgemein als „kembang telang" oder „teleng" bekannt. Am meisten findet sich die blaue Varietät und zwar eine dunklere und eine hellere Form. (Fig. 1.). Ferner gibt es eine weisse Varietät und zwar eine rein weisse, homozygotische und eine schwach bläulich weisse, vielleicht heterozygotische Form. Am seltensten ist die violette Varietät.

Ausser den normalen, zygomorphen Formen mit echten Papilionaceenblüten gibt es eine pelorische Form. Bei der normalen Blüte sind die 10 Staubblätter diadelphisch, bei der pelorischen dagegen nicht mit einander verwachsen; ausserdem sind alle Kronblätter ungefähr gleich gross (Fig. 2, 3.).

Daneben gibt es Übergänge zwischen der normalen, zygomorphen und der pelorischen Form, wo die Staubblätter alle frei sind, während jedoch die Kronblätter ungleich gross sind; die Fahne ist wie bei der zygomorphen Form das grösste Kronblatt. (Fig. 4.). Diese Form bezeichne ich als „hemipelorisch"; sie kann homo- oder heterozygotisch sein. So fand ich eine homozygotische hemipelorische blaue und weisse Form, deren Abkömmlinge immer konstant waren.

Zum Beurteilen einer *Clitoria*-Pflanze ist nicht nur die Kenntnis einer einzelnen Blüte, sondern einer grössern Anzahl solcher erforderlich. An schwächeren Zweigen von rein pelorischen, in Töpfen gezüchteten Pflanzen finden sich hemipelorische Blüten; an schwächeren Zweigen von hemipelorischen Pflanzen gibt es oft zygomorphe Blüten mit diadelphischen Staubblättern. Bei allen diesen Blütenformen ist die Frucht eine Hülse.

Bis jetzt gelang es mir, Pflanzen mit blauen und weissen pelorischen und hemipelorischen Blüten in der Natur zu beobachten, während die violette pelorische oder hemipelorische Form, so weit mir bekannt, nicht im Freien vorkommt. Weiter sei als Resultat von Versuchen erwähnt, dass Pflanzen mit zygomorphen Blüten mehr Früchte bilden als solche mit pelorischen oder hemipelorischen, da bei diesen viele Blüten ohne Fruchtbildung vertrocknen.

Bei *Clitoria ternatea* machte ich einige Beobachtungen und Versuche zum Nachweis des Zusammenhangs der drei Farben, welche Versuche jedoch noch nicht abgeschlossen sind; hier sollen daher nur einige vorläufige Resultate mitgeteilt werden.

A. Der Einfluss der Meereshöhe.

Clitoria ternatea findet sich nach BACKER [1]) und KOORDERS [2]) von 0 bis 150 M. über dem Meere und wird in grösserer Höhe als Zierpflanze gezüchtet. [3]) Bei meinen Versuchen mit Leguminosen im Gebirge [4]) säte ich in etwa 1600 Höhe zahlreiche Samen der zygomorphen blauen und weissen Form aus. Die Keimung war schlecht, die aufgekommenen Pflanzen blieben schwach und starben meistens vor der Blütenbildung ab. Nur einzelne Pflanzen der blauen Rasse blieben am Leben und blühten, ohne Früchte zu bilden. Sie wurden nur 2 dM. hoch — in der Ebene sind sie oft 3 M. lang — und bildeten sich nicht wie im Tieflande zu Schlingpflanzen aus, sondern blieben strauchförmig, wobei nur die Enden der Zweige ein wenig rankten, wie dies normalerweise z. B. bei *Phaseolus semi-erectus L.* der Fall ist. Bei *Clitoria* war also der Einfluss der Meereshöhe sehr deutlich und in ähnlicher Weise wie in analogen durch GASTON BONNIER [5]) u. A. ausgeführten Versuchen wahrnehmbar.

B. Bastardierungsversuche.

Im Freien finden sich sehr selten Hybride zwischen den Varietäten von *Clitoria ternatea*. Die Blüten werden in West-Java, so weit mir bekannt, hauptsächlich durch Holzbienen (Xylocopa) besucht, welche zum Rauben des Nectars unten an der Blüte einbrechen und sie nicht bestäuben; nur wenige andere Insekten, welche sie jedoch selten besuchen, kriechen so in die Blüten hinein, dass Kreuzbestäubung möglich ist. Wenn man die verschiedenen Varietäten der *Clitoria* in demselben Garten aussät, bekommt man fast nie spontane Bastarde; bei der blauen und der weissen Form der zygomorphen und der pelorischen Rasse, bekam ich auf dieser Weise niemals Bastarde.

Nur aus Samen einer Pflanze mit bläulich weissen Blüten, welche ich von einem Bekannten erhielt, kamen Pflanzen hervor, welche blaue oder weisse oder bläulich weisse Blüten hatten; die Mutterpflanze war also heterozygotisch. Bei einem anderen Versuch fand ich, dass aus Samen einer zygomorphen violetten Varietät, welche ich von 2 verschiedenen Standorten bekam, auch Pflanzen mit weissen Blüten hervorgingen. Ob alle Pflanzen mit violetten Blüten heterozygotischer Natur sind, kann natürlich nur durch eine ausgedehnte Untersuchung festgestellt werden.

[1]) C. A. BACKER. Schoolflora voor Java. Deel I, 1911. S. 356.
[2]) S. H. KOORDERS. Exkursionsflora von Java. Zweiter Band, 1912. S. 397.
[3]) Im Buitenzorger Herbarium findet sich jetzt Material aus 700 M. Meereshöhe.
[4]) A. RANT. Mededeelingen van het Kina Proefstation No. III. Korte aanteekeningen over Leguminosen in het Gebergte aangeplant 1916. S. 9.
[5]) GASTON BONNIER. Recherches expérimentales sur l'adaption des plantes ua climat alpin. Ann. d. scienc. nat. Botanique. Série 7. T. 20. 1895.

Bei meinen noch nicht abgeschlossenen Versuchen, wobei es sich bald zeigte, dass zur Beurteilung der Mendelschen Bastardspaltungen zu wenig Pflanzen verwendet worden waren, wurde zuerst die Frage gestellt, welche Farbe und welche Form dominant oder rezessiv sei. Nebenbei sei erwähnt, dass die später untersuchten Pflanzen vorher während mindestens 2 Generationen beobachtet wurden zur Beurteilung der Frage, ob sie homo- oder heterozygotisch waren, wobei die Pflanzen sich selbst überlassen wurden sodass Selbstbestäubung stattfand. Die blaue und die weisse Varietät — sowohl die zygomorphe als die pelorische Form — erwiesen sich als homozygotisch. Oben wurde schon gesagt, dass dies nicht der Fall war bei den Nachkommen von 2 verschiedenen Pflanzen mit violetten zygomorphen Blüten.

Versuch I.

Weiss zygomorph ♀ × dunkelblau zygomorph ♂.

Ausgesät wurden 409 Samen, aus welchen 368 Pflanzen F_1 hervorgingen. Die Blüten aller dieser Pflanzen waren blau und zygomorph, also ist blau dominant, weiss rezessiv.

Leider konnte die F_2-Generation in Ermangelung eines Versuchsfeldes nicht untersucht werden. Dieser erster Versuch sollte als Vergleich dienen mit früher von mir bei einer andern Pflanze aus der Familie der Convolvulaceen, *Quamoclit pinnata Boj.* erhaltenen Resultaten. Bei *Quamoclit* ist die Blüte der F_1-Generation, entstanden aus rot ♀ × weiss ♂ oder reziprok, oft etwas grösser als die der Eltern und rosa, also intermediär. Die F_2-Generation spaltet normalerweise auf im Verhältnis 1 : 2 : 1 ; bei der F_3-und F_4-Generation blieben die roten und weissen Pflanzen konstant, während die rosa Pflanzen sich weiter aufspalteten im Verhältnis 1 : 2 : 1.

Versuch II.

Dunkelblau zygomorph ♀ × dunkelblau pelorisch ♂.

Die Blüten aller Pflanzen der F_1-Generation waren blau pelorisch. Von der F_2-Generation wurden ausgesät 245 Samen, woraus 199 Pflanzen hervorgingen, welche alle blaue Blüten hatten und zwar:

zygomorphe	64
hemipelorische und pelorische	135 Pflanzen.

Aus diesem Versuche geht hervor, dass bei *Clitoria ternatea* pelorisch fast völlig dominant, zygomorph rezessiv ist Wir finden hier also gerade das entgegengesetzte Verhalten wie bei *Antirrhinum majus L.*, wo BAUR [1]) fast völlige Dominanz der zygomorphen Form über die pelorische festgestellt hat.

Versuch III.

Weiss zygomorph ♀ × dunkelblau pelorisch ♂.

Die Blüten aller Pflanzen der F_1-Generation waren blau pelorisch.

[1]) ERWIN BAUR. Einführung in die experimentelle Vererbungslehre 1914. S. 79.

Von der F_2-Generation wurden 373 Samen ausgesät, woraus 339 Pflanzen hervorgingen, welche sehr verschiedenartig waren; die Zahl der Versuchspflanzen war leider für eine genaue Analyse zu gering. Unter dieser F_2-Generation traten Pflanzen mit zygomorphen, mit pelorischen und mit hemipelorischen Blüten auf. Da es, wie vorher gesagt, oft schwierig zu bestimmen ist, ob eine Pflanze pelorisch- oder hemipelorisch ist, seien hier beide Formen als „pelorische" zusammengefasst. Bei diesen „pelorischen" und den zygomorphen Blütenformen zeigten sich verschiedene Farben: dunkelblau, hellblau, rein weiss, bläulich weiss, rein violett und violett mit hellgerändeter Fahne. Selbstverständlich wurde darauf Bedacht genommen, dass in der Nähe des Versuchsfeldes keine violette *Clitoria* vorhanden waren, sodass eine Bastardierung (Vizinismus) [1]) ausgeschlossen ist.

Wir erhielten folgende Zahlen:

a. Zygomorphe Blüten.

Hellblau	23
Dunkelblau	18
Rein weiss	23
Bläulich weiss	8
Violett	8
Violett mit hellem Saum	13
Total	93 Pflanzen.

b. Pelorische Blüten.

Hellblau	59
Dunkelblau	73
Rein weiss	37
Bläulich weiss	25
Violett	25
Violett mit hellem Saum	27
Total	246 Pflanzen.

Es wäre interessant zu untersuchen, welche van diesen Formen homo- oder heterozygotisch sind oder sein können; leider fehlte mir hierzu Zeit und Platz.

Deshalb wollte ich nur die neu entstandenen violetten Formen, speziell die pelorischen und hemipelorischen, Tafel 12, B. und C., welche ich bis jetzt noch nicht in der Natur angetroffen hatte, weiter untersuchen. Bei der F_3-Generation, abstammend von diesen Pflanzen mit violetten Blüten, hatte bis jetzt keine einzige blaue Blüten; dagegen gab es neben der Mehrzahl der Pflanzen mit violetten einige mit weissen Blüten. Was die Form anbetrifft, traten bis jetzt unter den Nachkommen der hemipelorischen Pflanzen einige Individuen mit

[1]) cf. HUGO DE VRIES. Species and Varieties, their Origin by Mutation 1905.

zygomorphen oder mit hemipelorischen oder mit echten pelorischen Blüten auf; die Mutterpflanzen waren also heterozygotisch. Bei den Nachkommen der pelorischen Pflanzen gab es Individuen mit hemipelorischen und solche mit pelorischen Blüten; auch deren Mutterpflanzen waren also heterozygotisch. Leider blühten beim Abschliessen dieser Untersuchung noch nicht alle Pflanzen und konnten daher noch nicht berücksichtigt werden. Bis jetzt gab es nur drei violette pelorische Pflanzen, deren F_3-Generation nur aus Pflanzen mit pelorischen Blüten bestand; die meisten hatten violette Blüten, nur einige weisse. Was die Form anbetrifft, war die Mutterpflanze vielleicht homozygotisch, in Bezug auf die Farbe heterozygotisch.

Schon oben wurde erwähnt, dass 2 Sendungen von Samen von Pflanzen mit zygomorphen violetten Blüten sich in Bezug auf die Farbe heterozygotisch zeigten.

Leider konnte ich durch meine Abreise aus Buitenzorg die F_4- und F_5-Generation dieser letzten Pflanze nicht untersuchen und eine konstante violette pelorische Rasse züchten. Dieses gelang mir später.

Aus diesen wenigen Versuchen, welche in zu geringer Zahl gemacht wurden, um zur genauen Prüfung der Mendelschen Bastardspaltungen zu führen, sind doch einige Folgerungen zu machen:

1. die blaue Farbe ist dominierend, die weisse rezessiv.
2. die pelorische Form ist fast völlig dominierend, die zygomorphe rezessiv.
3. in der F_2-Generation der Hybriden zwischen homozygotischen dunkelblauen und weissen Pflanzen (Versuch III) können Pflanzen mit violetten Blüten entstehen. Ob die violette Varietät der Farbe nach homozygotisch ist und ob sie in einer anderen Weise entstehen kann, soll durch weitere Versuche geprüft werden.

Aus den wenigen gemachten Versuchen ist es vorderhand nicht möglich, genauere Folgerungen zu ziehen. In jedem Falle entstand bei der dritten Versuchsreihe die violette pelorische und hemipelorische Form, welche, soweit mir bekannt, noch nicht in der Natur anwesend waren (Tafel 12, B. und C.).

C. Eine Knospenvariation.

Bei einem anderen Versuche über den Einfluss einiger chemischen Stoffe auf die Keimung von Samen, erhielt ich in meinem Garten eine sehr eigentümliche Pflanze von *Clitoria ternatea*.

Die Pflanze bildete anfangs nur gewöhnliche blaue Blüten und nachher hie und da Zweige, an welchen Blüten entstanden, die kleiner und viel heller blau waren als die am Hauptstamme. Deren blaue Farbe war anders und heller als die bei den Bastardierungsversuchen und in der Natur beobachtete und erinnerte an die blaue Farbe der Blüten von *Clitoria heterophylla Lam.*, die Blüte war etwas kleiner als gewöhnlich. Dann und wann entstanden an einem Zweige mit heller blauen Blüten andere Blüten mit beiden Nuancen von blau neben einander. Hie und da war der grössere

Teil der Blüte dunkelblau, dann wieder hellblau gefärbt ; am ausgeprägtesten zeigte sich dies an der Fahne. (Fig 5.). Deren dunkelblauer Teil war kräftiger im Wachstum als der hellblaue, sodass er oft am Rande hervorragte. Im Allgemeinen entstanden die hellblauen und die gemischtfarbigen Blüten ziemlich selten an dieser Pflanze und bildeten noch seltener reifen Samen. Bei nur einer Pflanze, hervorgegangen aus dem Samen einer gemischtfarbigen Blüte, entstanden bis jetzt einzelne Zweige mit heller blauen Blüten, während gemischtfarbige sich noch nicht zeigten. Leider gelang es mir bis jetzt nicht, aus den Samen die hellblaue Varietät rein herauszuzüchten.

Zum Schlusse spreche ich allen, die mir bei meiner Arbeit behilflich waren, meinen verbindlichsten Dank aus.

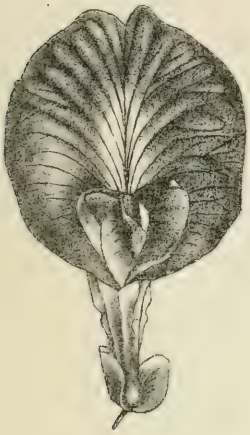
Figurenerklärung.

Tafel 11.

Fig. 1. Normale, zygomorphe Blüte,
Fig. 2. und 3. Pelorische Blüte,
Fig. 4. Hemipelorische Blüte,
Fig. 5. Fahne einer zweifarbigen Blüte,

Tafel 12.

A. Zygomorphe Blüte,
B. Hemipelorische Blüte,
C. Pelorische Blüte,
der entstandenen violetten Formen.
Durch Herrn C. VAN ZIJP, damals in Buitenzorg, photographiert.



1.

2.

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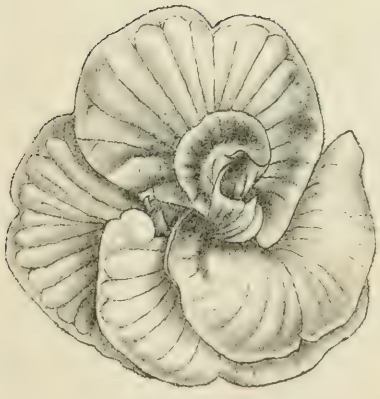

3.

4.

Clitoria ternatea L.

Clitoria ternatea L.

DEPARTEMENT VAN LANDBOUW, NIJVERHEID EN HANDEL

„'S LANDS PLANTENTUIN"

(„JARDIN BOTANIQUE DE BUITENZORG")

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Dr. K. GORTER. †

IN MEMORIAM

Dr. K. GORTER †

par

A. J. ULTEÉ.

A notre grand regret nous n'avons que très superficiellement connu notre prédécesseur et c'est pourquoi cette biographie est presque exclusivement basée sur l'étude de ses travaux scientifiques.

GORTER étudia la pharmacie à l'université de Groningue où sous la direction du professeur PLUGGE mort en 1897 à Buitenzorg où il séjournait pour le „Buitenzorgfonds" était publiée une importante série de publications pharmacologiques. GORTER n'eut pas seulement le privilège d'être un disciple de ce savant mais il put aussi collaborer avec lui comme préparateur. Le sujet de sa thèse: „Ueber die Bestandteile der Wurzel von Baptisia tinctoria R. Br" (2, 3, 4,) [1]) lui fut suggeré par PLUGGE.

A cette époque l'instruction classique était nécessaire pour l'obtention du doctorat dans les universités néerlandaises; pour GORTER, ancien élève de l'école réale superieure, cette possibilité n'existait donc pas et c'est pourquoi il fut contraint à terminer ses études à l'étranger. Ses recherches, commencées à Groningue, furent achevées à l'institut chimico-pharmaceutique de Marburg, sous la direction du Professeur Dr. SCHMIDT; en 1897 il y conquit le grade de docteur.

De la racine de Baptisia tinctoria (famille des Papilionacées) plante connue en Amérique pour ses propriétés thérapeutiques GORTER a isolé trois corps chimiques à savoir un glucoside, la baptisine, partie essentielle, qui s'y trouve en proportion de 6 %, un autre glucoside, la baptine, qui ne fut examiné plus en détail et enfin un alcaloïde, la baptitoxine.

GORTER détermina la composition chimique de la baptisine et examina sa décomposition par des acides dilués. Il réussit à démontrer la présence du rhamnose (isodulcite) et arriva à isoler à l'état pur le second constituant de ce corps qu'il nomma la baptigénine. Il chercha à déterminer la structure de ce produit de décomposition; pour cela il en prépare les composés acétylés et benzoylés et c'est ainsi qu'il constata la présence de trois groupes hydroxyle. Pour savoir si le corps appartenait à la série aromatique ou grasse l'auteur fit la réaction à l'acide nitrique et le résultat fut un corps nitrique bien caractérisé, qu'il identifia à l'acide styphnique (acide oxypicri-

[1]) Les chiffres correspondent à l'index bibliographique qui se trouve à la fin de cette biographie.

que). Il démontra ainsi qu'il y avait dans la baptigénine un noyau aromatique et plus précisement un noyau résorcinique qui fut confirmé par la fusion avec la potasse.

Des essais d'oxydation n'eurent pas le succès attendu; par contre la décomposition à l'aide de soude caustique à 5% réussit de façon satisfaisant et le résultat fut le dégagement d'acide formique et la formation d'un corps nouveau, nommé la baptigénitine.

Dans sa thèse GORTER démontra encore l'identité de la baptitoxine avec la cytisine, alcaloïde qui se trouve dans plusieurs sémences de Léguminoses. Il a utilisé dans ce but la réaction, dite de VAN DER MOERS. Dans son premier travail (1) GORTER avait déjà mentionné les conditions sous lesquelles la réaction donne les meilleurs résultes et il réussit à mettre en évidence des quantités très faibles de cytisine (jusqu'à $^1/_{20}$ m. gr.).

Dans la dernière phrase de sa thèse il se réservait de reprendre ses recherches des substances constituants de la racine de Baptisia; il ne payait pas des mots car la même année déjà parut une brève note sur un nouveau corps chimique extrait de cette racine, la pseudobaptisine (5) sujet sur lequel il publia pendant son séjour à Buitenzorg deux autres travaux. Nous y reviendrons plus loin.

GORTER s'établit d'abord comme pharmacien à Bréda; dans cette situation il ne pouvait naturellement pas consacrer beaucoup de temps à la phytochimie et il ne publia qu'un petit travail sur la réaction amphotère du lait et de l'urine (6).

En 1904 GORTER fut nommé chimiste à la station expérimentale pour le café, rattachée comme Division temporaire au Département de l'Agriculture. En 1906 il fut promu chef de cette division, fonction qu'il remplit jusqu'à la liquidation de la dite station en 1910. Pendant ces 6 années GORTER s'était occupé surtout de recherches de laboratoire; il semble que le côté pratique de la culture du café l'ait moins interessé

Pendant cette période GORTER n'a pas seulement fait d'importantes recherches sur les substances rencontrés dans la baie de café, mais il trouva encore l'occasion de se remettre à l'étude des sujets qu'il avait traités dans sa thèse.

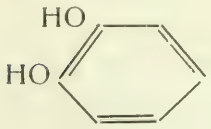
La pseudobaptisine fut étudiée de plus près (7, 8); ce glucoside ne se distingue de la baptisine que par un seul groupe CH_2 mais il a une structure différente à certains égards. Par l'hydrolyse outre le rhamnose on obtient du glucose: le troisième produit de décomposition (pseudobaptogénine) n'a qu'un seul groupe hydroxyle. Mais la grande ressemblance entre la baptigénine et la pseudobaptigénine fut mise en évidence par la décomposition à l'aide d'alcalis parceque à partir de ces deux corps il y a formation de baptigénitine.

Nous devons maintenant mentionner les résultats des études de GORTER relatives à la culture du café; ce sont les beaux traveaux sur l'acide

chlorogénique qu'il faut mettre en première ligne (9, 10, 11, 18, 19, 20, 21). Depuis longtemps déjà la semence du café a attiré l'attention des chimistes; il y a 70 ans PAYEN [1]) y constatait la présence d'un sel bien cristallisable de potasse et de caféïne. L'acide de ce sel ayant en solution ammoniacale la faculté de devenir vert, Payen lui donna le nom d'acide chlorogénique. Mais cet auteur de même que ceux qui plus tard l'ont étudié n'a pas connu l'acide chlorogénique à l'état pur et lorsque GORTER commença ses recherches fondamentales la structure de ce corps était encore complètement inconnue. La décomposition par des alcalis, faite par GORTER, facilita beaucoup la solution de ce problème; c'est par ce moyen-là qu'il put démontrer la formation de quantités équimoléculaires d'acides caféique et quinique. Il est regrettable que la présence de $^1/_2$ mol. d'eau de cristalisation dans l'acide chlorogénique (qui semble être fortement liée) comme FREUDENBERG [2]) l'a démontré ait echappé à GORTER. GORTER arriva en effet à la formule $C_{32}\ H_{38}\ O_{19}$ tandis que FREUDENBERG prouvait l'exactitude de la formule $C_{16}\ H_{18}\ O_9$.

Les nombreuses analyses faites par GORTER de l'acide chlorogénique et de beaucoup de ses dérivés concordent avec cette formule.

L'acide chlorgénique est donc un éther anhydre des acides caféique et quinique et a la formule:



$$-\ CH:CH.CO.OC_6H_7(OH)_3CO.OH$$

C'est donc un représentant de la classe des depsides d'EMIL FISCHER (qu'on trouve à l'état libre dans des lichens et à l'état combiné dans des tannins de Chine). FISCHER avait prévu que les substances de ce groupe seraient assez répandus. Jusqu'à présent on n'avait trouvé que des acides phenolcarboniques comme corps primaires de ces depsides, le fait que l'acide quinique peut s'y trouver comme tel constitue une découverte importante.

Que GORTER n'ait pas élucidé complètement la structure de cette substance cela ne diminue naturellement en rien le mérite de ses recherches et c'est d'ailleurs avec l'expression d'une grande estime que FREUDENBERG parle du profit qu'il a retiré du „sorgfältig durchgearbeitetem Versuchsmaterial."

C'est GORTER aussi qui démontre que l'acide café-tannique des anciens auteurs n'était pas un corps pur mais un mélange contenant une importante quantité d'acide chlorogénique. L'acide cafétannique ayant signalé dans plusieurs plantes il était donc naturel d'y supposer l'existence de l'acide chlorogénique. Gorter appliqua à un grand nombre de plantes une réaction colorante qui selon lui est caractéristique de l'acide chlorogénique et dans de nombreux cas il obtint en effet des résultats positifs (13, 14, 29).

[1]) A. ch. (3) 26, 108 (1849).
[2]) Ber. D. Ch. Ges. 53, 232 (1920).

De plusieurs plantes (semences de Kopsia flavida, Helianthus annuus, Strychnos nux vomica, latex de Castilloa élastica) où par cette réaction colorante la présence de l'acide chlorogénique avait été démontrée, GORTER réussit à isoler ce corps à l'état pur.

Mais GORTER attachait trop d'importance à cette réaction car CHARAUX [1]) montra que l'acide caféique donnait précisement le même résultat et la possibilité n'est pas exclue que d'autres corps de nature analogue puissent se comporter de la même facon.

Ces recherches mirent aussi en lumière que l'acide igasurique des semences de Strychnos nux vomica et l'acide hélianthique des semences d'Helianthus annuus étaient identiques avec l'acide chlorogénique. (15, 16).

GORTER a isolé encore des semences de café toute une série d'autres corps et il les a étudiés plus ou moins en détail ; ainsi une matière pectique (9) qui donne par oxydation nitrique de l'acide mucique et par hydrolyse du galactose et un pentose ; puis il isola une oxydase (9) qui avec le chlorogénate de potasse et de cafeïne donne une coloration ; l'acide coffalique (9) l'acide citrique (18) et (des semences de Coffea libéria) l'alcaloïde trigonelline (18) déjà trouvé par POLSTORFF [2]) chez Coffea arabica.

Il est intéressant de mentionner que l'acide isovalérianique se rencontre parmi les produits de décomposition de l'acide coffalique ($C_{34}H_{54}O_{15}$) par des alcalis.

Enfin on ne doit pas manquer de fixer l'attention sur d'importantes contributions apportées par GORTER au problème de la fermentation du café. Il a démontré que cette fermentation, qui a pour effet de débarrasser les grains du mucilage que les entourne, est surtout une fermentation lactique. Il put isoler l'acide lactique inactif ; en outre il trouva qu'en l'agitant avec une solution de 0.5 % de cet acide, le musilage gonflait fortement et pouvait être enlevé facilement par simple lavage.

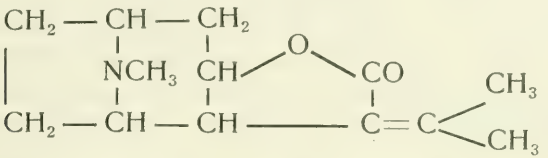
Après la liquidation de la station expérimentale, en 1910, GORTER fut nommé chef du laboratoire de microbiologie du Département de l'Agriculture. Dans cette situation il porta son attention avant tout sur des questions intéressant le caoutchouc ; néanmoins il trouva l'occasion de terminer ses études sur l'alcaloïde dioscorine (20, 22) sujet sur lequel il avait déjà en 1909 publié une note préliminaire (17), il entama en outre l'examen du principe amer d'Andrographis paniculata Nees (20, 23, 31). Pendant son séjour en Hollande (1914) il en continua ses recherches au laboratoire de chimie organique de Delft.

A l'époque où Gorter était préparateur du Prof. PLUGGE la dioscorine (alcaloïde des tubercules du Dioscorea hirsuta Bl, connus à Java sous le nom de „Gadoeng" et employés assez fréquemment par les indigènes comme substance alimentaire) fut choisie comme sujet de thèse par SCHUTTE ; il isola la dioscorine et plusieurs de ses sels à l'état pur et par analyse élementaire en établit la formule : $C_{13}H_{19}NO_2$.

[1]) Journ. Pharm. Chim. (7) 2, 292 (1910).
[2]) Chem. Centralbl. 1909. Band. 2, pag. 2015.

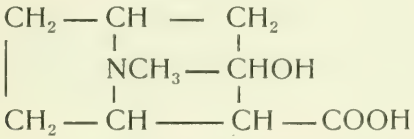
Lorsque GORTER commenca ses recherches la formule de structure de cette substance était cependant inconnue et c'est par une étude systématique qu'il réussit à élucider cette question.

La formula proposée par GORTER:



contient le noyau lactique, constaté par lui, elle explique la perte de méthylamine sous l'action d'une lessive de potasse caustique, puis la transformation du méthylate d'iode par l'oxyde d'argent en une substance fortement alcaline, qui se décompose avec perte d'acide carbonique et d'eau en une nouvelle base tertiaire et enfin elle explique la possibilité de réduire la dioscorine..

Si l'on compare la formule proposée pour la dioscorine avec celle de l'ecgonine, provenant du doublement de la cocaine:



on constate que la parenté de ces deux alcaloïdes est évidente. Il apparait même selon GORTER probable que la dioscorine doit pouvour être transformée par oxydation en ecgonine.

GORTER établit que l'andrographolide, le corps amer d'Andrographis paniculata N., dont la formule selon l'auteur est $C_{20}H_{30}O_5$, semblait être une lactone. Il démontra encore que l'andrographolide contient 3 groupes hydroxyle et deux double liaisons, dont l'une seulement entre en réaction avec la brome. GORTER avait l'intention d'étudier plus en détail ce corps intéressant mais la mort hélas a interrompu prématurément ses recherches.

Nous avons encore à passer en revue les travaux scientifiques de GORTER sur le caoutchouc, recherches aussi sérieuses que celles qu'il avait consacrées au café.

En 1912 parut une communication sur le glucoside des graines d'Hévéa brasiliensis Muell. Arg. (27) et une autre sur les acides chlorogéniques et saccharique rencontrés dans le latex (29). Dans la première il démontre l'identité du glucoside des graines d'Hévéa avec la phaséolunatine, dans la seconde il établit la présence de l'acide chlorogénique dans le latex de Castilloa élastica et l'existence, sous forme de sel de magnésium, de l'acide d-saccharique dans le latex de Ficus élastica. Ce dernier résultat est fort intéressant parceque cet acide n'avait pas jusqu'alors été rencontré dans la nature.

Quant aux recherches intéressant plus spécialement les besoins de la pratique, on doit citer, celles sur la propriété de caoutchouc de devenir poisseux et celles sur la viscosité des solutions de caoutchouc. Dans le premier de ces traveaux GORTER (26) établit une théorie d'après laquelle le caoutchouc élastique ordinaire serait à l'état métastable et qu'il tournait, lentement il est vrai, en la forme stable et poisseuse, mais d'autres auteurs ayant démontré que l'oxygène joue un rôle pour provoquer l'état poisseuse de caoutchouc et que dans un gaz indifférent cela ne se produit jamais, GORTER dans ses publications ultérieures (28,30) ne put plus soutenir sa théorie.

Cela n'empêche pas qu'il a surtout dans sa seconde publication (28) des observations fort intéressantes sur le caoutchouc poisseux.

GORTER a surestimé la valeur de la viscosité (32, 33) comme élément d'estimation du caoutchouc et l'index de viscosité proposé par lui pour remplacer le nombre de viscosité ne présentait pas d'avantage.

En 1915 la station expérimentale pour le caoutchouc en Java occidental fut fondée, GORTER revenant d'Europe après son congé, fut chargé par le Directeur d'Agriculture d'en prendre la direction tout en restant chef du laboratoire de microbiologie. Pendant deux années GORTER remplit cette fonction spéciale; mais ce qu'il a fait pendant cette période échappe à mon jugement, il faudrait l'avoir suivi de plus près pour apprécier son activité.

Des publications parues à cette époque il faut mentionner les expériences avec SWART sur certains procédés de coagulation n'utilisant pas l'acide acétique et tout spécialement sur le procédé dit du sucre. (34).

EATON, spécialiste des questions de chimie du caoutchouc, avait trouvé que la coagulation spontanée est visiblement accélérée si au latex on ajoute divers sucres; GORTER et SWART démontrèrent que ce phénomême est dû à la formation d'acide lactique.

La dernière communication de GORTER dans le domaine du caoutchouc parut en 1917 et traite de la composition chimique du latex d'Hévéa (35).

Pour être complet on doit mentionner une petite note parue à cette époque sur l'huile des sémences de Xanthophyllum lanceatum J.J.S. (24, 25).

Ce fut certainement une grande satisfaction pour GORTER d'être nommé au mois de Septembre 1917 chef du laboratoire de pharmacologie du Département d'Agriculture car il pouvait ainsi se dévouer complètement aux études phytochimiques pour lesquelles il avait toujours eu de la prédilection. C'est avec un grand entrain qu'il occupe sa nouvelle fonction et en quelques années une série d'importantes publications fixèrent les résultats de ses études. Les matières végétales suivantes furent examinées par Gorter d'une manière approfondie: l'hyptolide (36), la lycorine (37, 38, 40), l'hiptogine (39) et la laurotétanine (41).

L'hyptilode est une substance de saveur amère que BOORSMA, le prédécesseur de GORTER, avait isolée des feuilles d'Hyptis pectinata Toit, plante de la famille des Labiées. GORTER s'est occupé des propriétés de cette substance et a démontré qu'elle répond à la formule $C_{18}H_{26}O_8$, qu'elle est une lactone et un triacétate. L'oxydation par l'oxyde d'argent en milieu alcalin fournit un nouvel équivalent d'acide acétique, résultat qui plaide pour la présence d'un groupe terminal de méthyle.

Par réduction catalytique une molécule de l'hyptolide absorbe trois molécules d'hydrogène; l'oxydation de cette hyptolide hexahydrogénée par le permanganate a permis d'élucider la constitution de cette substance comme suit:

$$CH_2OH-CH_2-CH_2-(CH_3)_2\underset{\underset{OH}{|}}{C}(CH_3)-CHOAc-CHOAc-CHOAc-CH_3$$

où Ac désigne acétyle ($COCH_3$).

L'oxydation manganique concorde avec cette formule; elle provoque la formation de deux acides dont l'un est identique avec l'acide $\alpha\alpha$ diméthylglutarique; pour l'autre on a des raisons d'admettre qu'elle soit l'acide $\alpha\beta\beta$ triméthyladipique qui n'avait pas encore été isolé à l'etat pur.

La formule proposée fut confirmée par la formation d'acide succinique en oxydant avec l'acide nitrique.

Après avoir démontré la structure de l'hyptolide hexahydrogenée on put déduire avec grande probabilité la formule pour l'hyptolide comme suit:

$$\begin{array}{l} CH=CH-C(CH_3)_2\,C(CH_3)-CHOAc-CHOAc-CHOAc-CH_3 \\ \quad| \qquad\qquad\qquad\qquad\qquad\quad| \\ CO\text{———————}O \end{array}$$

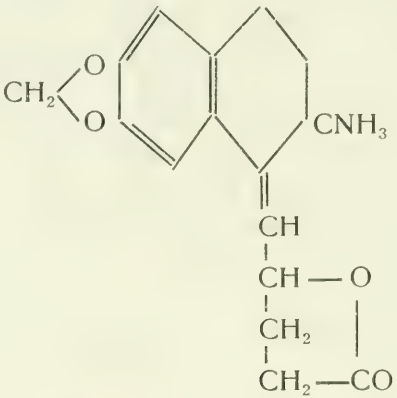
Les recherches de plusieurs savants ont révélé chez diverses plantes de la famille des Amarillidacées la présence d'un alcaloïde identique à celui de Lycoris radiata Herb: la lycorine. GORTER a examiné plusieurs plantes tropicales de cette famille et a démontré chez elles la présence de cette alcaloïde (39, 40).

En partant des bulbes frais de Crinum giganteum GORTER a fabriqué en grand la lycorine et a repris l'étude de cette substance (38) dont aucune hypothèse concernant la structure n'avait été émise jusqu'alors.

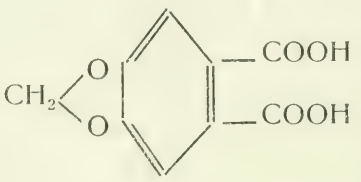
GORTER affirma que la lycorine est une base tertiaire possédant le groupement dioxyméthylénique signalé déjà par plusieurs auteurs antérieurs. L'alcaloïde hydrastine, dont la structure est connue, possède les mêmes groupements et des propriétés concordantes. Cette analogie se confirma aussi à la réduction catalique: la lycorine fixa elle aussi deux atomes d'hydrogène en se transformant en une nouvelle base la dihydrolycorine.

En présence de ce résultat il est donc fort probable que la lycorine possède une constitution analogue à celle de l'hydrastine.

GORTER propose la formule suivante:



Cette formule a été vérifiée par oxydation manganique; l'acide provenant de cette oxydation était identique à l'acide hydrastique:



Comme il se forma en outre par oxydation de l'acide oxalique et pas du tout de l'acide succinique, la formule proposée pour la lycorine concordait avec toutes ses propriétés.

Un glucoside bien curieux est l'hiptagine, retiré de l'Hiptago madeblota Gaertn; arbrisseau grimpant de la famille des Malphighiacées. La propriété la plus caractéristique de cette substance est la manière dont elle se comporte vis-à-vis des alcalis qui, par ébullition, la décomposent avec dégagement d'ammoniaque et après acidulation immédiate, d'acide cyanhydrique.

L'hiptagine répond selon les analyses de GORTER (36) à la formule $C_{10}H_{14}O_9\ ^1/_2H_2O$; chauffée avec l'acide sulfurique dilué elle se dédouble en d-glucose et en une substance très instable qui n'a pu être isolée, mais dont la formule $C_4H_4N_2O_4$ a été déduite en étudiant les produits de réaction des acides et des acalis sur l'hiptagine elle-même.

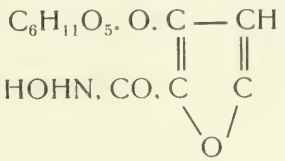
L'acide sulfurique à 5 % donne naissance à du d-glucose et de l'acide tartrique. En faisant agir l'acide chlorhydrique en solution acétonique sur l'hiptagine, une nouvelle substance de nature acide, que GORTER a appelée acide hiptagénique, prend naissance. Cet acide est monobasique et répond à la composition $C_3H_5NO_4$.

Quant à sa configuration, GORTER propose la formule:

HOHN. CO. COH : CHOH

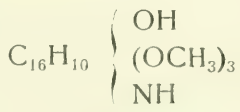
qui concorde avec les résultats obtenus par l'action de l'acide chlorhydrique concentré sur cet acide hiptagénique. Sous cette influence l'acide se dédouble en acides diglycolique et formique et en hydroxylamine.

Cela nous entrainerait trop loin de décrire toutes les réactions nombreuses dont cet intéressant acide est capable. Avec d'autres observations elles ont conduit GORTER à accepter pour l'hiptagine la constitution suivante:

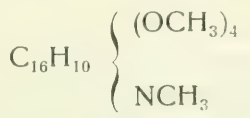


Ce glucoside est donc un dérivé de l'isoxazol dont on n'a pas trouvé jusqu'à présent de représentants dans la nature. Au point de vue physiologique l'hiptagine semble, selon GORTER, avoir quelque intérêt: on pourrait être tenté d'admettre que la plante réduirait l'azotate assimilé en hydroxylamine mettant celle-ci, dès sa naissance, en réaction avec les produits aldéhydiques et cétoniques, provenant de l'assimilation du carbone.

Les dernières recherches de Gorter traitent sur la laurotétanine (41) l'alcaloïde tétanisant de diverses Lauracées, découvert par M. GRESHOFF et plus tard étudié par M. FILIPPO. GORTER affirma la formule $C_{19}H_{21}NO_4$. FILIPPO par la méthode de Zeisel, avait déjà établi la présence dans la molécule de trois groupements méthoxyle et d'un groupement oxydrile. La laurotétanine étant une base secondaire la formule fut decomposée en

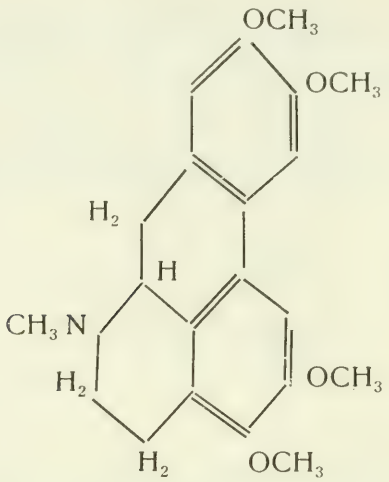


Par méthylation à l'aide de diazométhane on obtient:

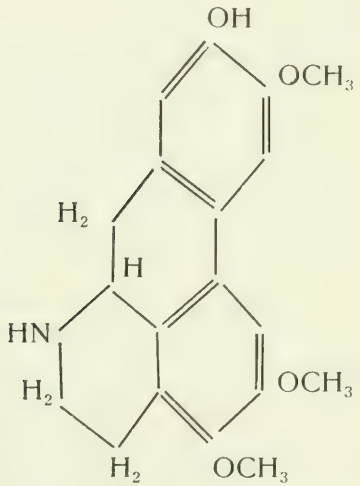


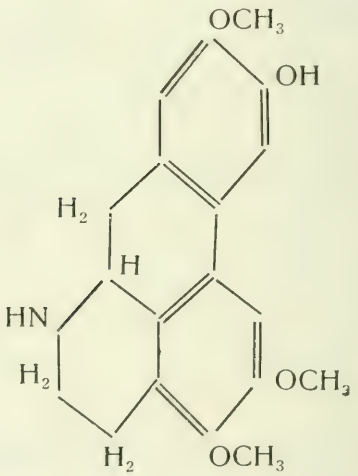
isomère à la formule de l'alcaloide glaucine, et nommé par GORTER isoglaucine. En effet il semble exister des relations étroites entre la laurotétanine et la glaucine, également dans leur action pharmacologique.

L'oxydation manganique de la laurotétanine a donné de l'acide 1. 2 diméthoxybenzène 3. 4. 5. tricarbonique. La constitution de la glaucine, étant connue, la formule pour l'isoglaucine était:



Pour la laurotétanine nous avons donc encore le choix entre les formules suivantes:





Parmi les papiers, laissés par le regretté GORTER, nous avons trouvé encore un manuscrit, qui nous a semblé prêt pour l'impression, sur la mangiférine, substance mère du jaune indien et que nous avons pensé pouvoir publier tel quel in extenso à la suite de cette biographie; nous n'avons donc pas besoin de nous y arrêter longuement ici; nous devons seulement relever le fait que l'auteur y confirma la formule déjà établié pour ce corps $C_{19}H_{18}O_{11}$ et qu'il y démontre la présence de deux oxyhydriles phénoliques et de sept groupes hydroxyle. En se basant sur ces observations et sur des expériences ultérieures GORTER pense pouvoir établir la formule de structure de la mangiférine.

En dehors de quelques publications populaires et des conférences indiqués dans l'index bibliographique, nous avons terminé ici la discussion des travaux de GORTER. Nous espérons que notre exposé a montré clairement les qualités speciales que GORTER possédait comme expérimentateur. Une description superficielle des matières végétales isolées par lui ne lui suffisait jamais et il n'abondonna jamais leur étude avant d'avoir complètement élucidé leur constitution. Si GORTER avait pu réaliser ses projets, il aurait publié encore de nombreux et excellents travaux; sa mort prématurée est une perte non seulement pour le Jardin botanique de Buitenzorg mais pour la science tout entière.

Buitenzorg Jan. 1922.

LISTE CHRONOLOGIQUE DES PUBLICATIONS FAITES

par

M. GORTER.

A. Publications scientifiques.

1.	1895.	Ueber die v. d. Moersche Reaction und die Ermittlung des Cytisins.	Arch. Ph. 1895. 527.
2.	1897.	Ueber die Bestandteile der Wurzel von Baptisia tinctoria R. Br.	Inaug. Diss. Marburg.
3.		idem	Arch. Ph. 235. 30. 321.
4.		idem	Ned. T. Ph. 1897.
5.		Ueber das Pseudobaptisin	Arch. Ph. 235. 494. Ned. T. Ph. 1897.
6.	1902.	De amphotere reactie van melk en urine.	Ph. Weekbl. 1902. 300.
7.	1906.	Die Baptisiaglucoside. Pseudobaptisin. .	Arch. Ph. 244. 401.
8.	1907.	Ueber Pseudobaptisin. 4-te Mitt. . . .	Arch. Ph. 245. 561.
9.		Beiträge zur Kenntnis des Kaffees. . .	Bull. Dép. Agr. XIV.
10.	1908.	Idem. . . .	Ann. Ch. 358. 387.
11.		Idem. . . .	— 359. 217.
12.		Over het coffeine gehalte van eenige op Java gekweeksche koffiesoorten . . .	Teysm. 1908. 774.
13.	1909.	Sur la distribution de l'acide chlorogénique dans la nature.	Ann. Jard. bot. Bz. 1909. 60.
14.		Ueber die Verbreitung der Chlorogensäure	Arch. Ph. 247. 184. Arch. Ph. 247. 184.
15.		Ueber die Igasursäure	Arch. Ph. 247. 197.

16.		Zur Identität der Helianthsäure mit der Chlorogensäure	Arch. Ph. 247. 436.
17.		Sur la dioscorine.	Ann. Jard. bot. Bz. 2e Serie Suppl. III. 385.
18.	1910.	Beiträge zur Kenntnis des Kaffees. . .	Bull. Dep. Agr. XXXIII
19.		Idem. . . .	Ann. Ch. 372. 237.
20.	1911.	Phytochimie	Bull. Dep. Agr. 44.
21.		Beiträge zur Kenntnis des Kaffees. . .	Ann. Ch, 379. 110.
22.		Sur la constitution de la dioscorine. .	Rec. P. B. 1911. 161.
23.		Sur le principe amer de l'Andrographis paniculata. Nees	Rec. P. B. 1911. 151.
24.		Sioer, een nieuw oliezaad	Korte Ber. Dep. L. II.
25.		Ein neuer Oelsamen, ... ,	Arch. Ph. 249. 481.
26.		Over het pekkig worden van rubber . .	Med. Rubber I Dep. van Landbouw.
27.	1912.	Sur le glucoside cyanhydrique des graines d'Hevea brasiliensis Müll. arg.	Rec. P. B. 1912. 264.
28.		Verdere gegevens over het pekkig worden	Med. Rubber II Dep. van Landbouw.
29.		Note sur les acides chlorogénique et saccharique dans le latex	Rec. P. B. 1912. 281.
30.	1913.	Tackiness of rubber	Rec. Int. Rubber congr. Batavia.
31.	1914.	Sur l'andrographolide, ...	Rec. P. B. 1914. 239.
32.	1915.	Een viscosimeter v. d. praktijk	Teysm. 1915. 298.
33.		De viscositeits-index ter voorl. beoord. v. d. kwaliteit	Med. Rubber IV Dep. van Landbouw.
34.	1916.	Eenige ervaringen over het coaguleeren van Hevea-latex zonder azijnzuur . . . (met Dr. N. L. Swart).	Med. Rubberproefstation West-Java No. 6.
35.	1917.	Over de chem. samenstelling v. Hevea-latex	Arch. Rubbercult. N.I. 1917. 375.
36.	1920.	Sur l'hyptolide, principe amer d'Hyptis pectinata Poit	Bull. Jard. Botanique 3e Serie I. 327.
37.		Sur la distribution de la lycorine dans la famille des Amaryllidacees	Bull. Jard. Botanique 3e Serie I. 352.
38.		Sur la constitution de la lycorine . .	Bull. Jard. Botanique 3e Serie II. I.
39.		L'hiptagine, glucoside nouveau retiré de l'Hiptago madablota Gaertn.	Bull. Jard. Botanique 3e Serie II. 187.

40.		Sur la distrib. de la lycorine dans la fam. des Amaryllidacées (suite).	Bull. Jard. Bot. 3e Serie II. 331.
41.		Sur la laurotetanine, l'alcaloide tétanisant de diverses Lauracées	Bull. Jard. Bot. 3e Serie III. 180.

B. Publications populaires, conférences, etc.

1.	1907.	Koffie zonder coffeine, ...	Teysm. 1907. 239.
2.		Kunstmatige indigo, rubber enz. . . .	— 1907. 407. 470.
3.	1909.	Groene bemesting	Congres N. I. Landb. synd. Bandoeng.
4.	1911.	Over het berooken van gom-elastiek .	Korte Ber. Teysm. 191. 393.
5.		Over het pekkig worden van rubber .	Teysm. 1911. 530.
6.		In welke richting moeten zich de onderzoekingen ten behoeve van de rubbercultuur verder bewegen	Teysm. 1911. 634.
7.	1912.	Iets over enzymen	Teysm. 1912. 38.
8.		Kina	Teysm. 1912.
9.		Over de duurzaamheid van rubber . .	Teysm. 1912. 508.
10.	1915.	Een van de oorzaken van verschillen in kwaliteit bij Hevea-rubber	Teysm. 1915. 82.
11.		Uniformiteit van plantagerubber . . .	Med. Rubberproefstation West-Java No. 2.
12.	1916.	Synth. Rubber	Med. Rubberproefstation West-Java No. 4.

SUR LA SUBSTANCE MÈRE DU JAUNE INDIEN

par

Dr. K. GORTER. †

On sait, par les recherches de GRAEBE [1]), que le jaune indien, qui constitue le dépôt de l'urine des vaches auxquelles on a fait manger des feuilles de manguier, est constitué pour la majeure partie d'euxanthate de magnésie et de chaux, et mélangé parfois d'une quantité variable d'euxanthone. L'acide euxanthique, séparé de cette matière colorante au moyen d'acide chlorhydrique, a été étudié déjà en 1844 par ERDMANN [2]) qui le décomposa, à l'aide d'acide sulfurique concentré, en euxanthone et une substance sirupeuse qu'il nomma acide homathionique; puis, V. BAYER [3]), en 1870, assigna la formule $C_{19}H_{16}O_{10}$ à l'acide anhydre et représenta l'hydrolyse, sous l'influence d'acides, par l'équation suivante:

$$\underset{\text{Acide euxanthique}}{C_{19}H_{16}O_{10}} + H_2O = \underset{\text{Euxanthone}}{C_{13}H_8O_4} + C_6H_{10}O_7$$

La nature de la substance $C_6H_{10}O_7$ a été dévoilée ensuite par les recherches de SPIEGEL [4]) qui la trouva identique à l'acide glycuronique de SCHMIEDEBERG et MEYER [5]).

Or, on connaissait déjà à cette époque toute une série de substances dérivées de l'acide glycuronique qui apparaissent dans l'urine dé l'homme et du chien à la suite de l'ingestion de nombreux composés organiques. Il semblait donc naturel de supposer que l'acide euxanthique prît naissance, de la même manière, à partir d'une substance proche parente de l'euxanthone, d'autant plus que KOSTANECKI [6]) démontra que l'euxanthone elle-même, ingérée par des lapins, s'élimina par l'urine sous forme d'acide euxanthique.

Remarquons, pour ce qui concerne la substance mère du jaune indien, que EYKMAN [7]), lors de sa visite au Jardin botanique de Buitenzorg en

[1]) Ann. Chem. 254, 267.
[2]) J. prakt. Chem. 33, 90; 37, 385.
[3]) Ann. Chem. 155, 257.
[4]) D. chem. G. 15, 1964.
[5]) Z. physiol. Chem. III, 422.
[6]) D. Chem. G. 19, 2918.
[7]) Bezoek aan 's Lands Plantentuin. N. Tijdschr. Pharm. 1887, 23.

1887, avait déjà isolé, de l'écorce du manguier, une substance insipide, presque blanche qui se dépose par évaporation de l'extrait alcoolique, donne avec de l'ammoniaque une solution jaune, d'une fluorescence verdâtre et se transforme, par évaporation, en masse gélatineuse.

Plus tard, BOORSMA [1]) obtint cette substance des feuilles ainsi que de l'écorce du manguier, sous forme d'une poudre légèrement jaunâtre qui constitue, au microscope, des cristaux prismatiques et anhydres, très peu solubles dans divers dissolvants; le meilleur dissolvant est l'alcool à 60 % qui en dissout, à chaud, 1,34 gr. pour 100 cc. La cristallisation dans l'eau chaude fournit un hydrate d'un jaune plus foncé perdant, dans l'étuve à 125°, 7,5 % de son poids Les alcalis donnent avec ce produit des solutions jaunes, d'une fluorescence verte, qui réduisent, déjà à froid, l'azotate d'argent ammoniacal; par contre, la liqueur de FEHLING n'est pas réduite, d'après BOORSMA. Cet auteur considère la substance, isolée par lui, comme un acide bibasique, sans apporter à l'appui de cette opinion de preuves valables; du reste, il se borne à constater que cette substance est certainement différente de l'euxanthone.

Presque en même temps, WIECHOWSKI [2]) isola, à partir des feuilles, la même substance, fusible à 273—280°, dont il a montré qu'elle apparaît dans l'urine sous la forme d'acide euxanthique, quand on l'administre à des lapins au moyen d'une sonde. Il résulte de cette constatation que ce produit constitue bien la substance mère du jaune indien. WIECHOWSKI l'a nommé euxanthogène; je préfère le désigner sous le nom de „mangiférine" indiquant ainsi son origine végétale.

L'analyse de la mangiférine a donné à WIECHOWSKI des chiffres répondant à $C_{19}H_{18}O_{11}$, formule brute de l'acide euxanthique lui-même. Cette dernière formule a été vérifiée, il y a quelques années, par VAN SCHERPENBERG [3]), qui en a pris le poids moléculaire par ébullioscopie. Ces essais, qui ont donné des nombres se rapprochant de 422, qu'exige la formule $C_{19}H_{18}O_{11}$, ne sont cependant pas concluants, à cause des corrections que l'auteur a cru pouvoir admettre.

Tel était l'état de la question, quand j'ai repris l'étude de la mangiférine; les résultats de mes recherches se résument comme suit.

Au point de vue chimique, la mangiférine se distingue nettement de l'acide euxanthique par la manière dont elle se comporte vis-à-vis du bicarbonate de soude, avec lequel elle ne donne pas immédiatement un dégagement d'acide carbonique. Nous en concluons que la mangiférine ne contient pas de groupe carboxyle libre.

Elle m'a donné, à l'analyse, des chiffres concordant aussi bien avec la formule $C_{14}H_{14}O_8$ qu'avec $C_{19}H_{18}O_{11}$; du reste, l'étude de l'éther

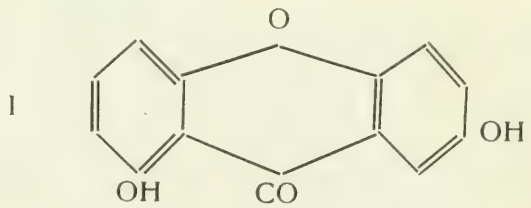
[1]) Bull. Dép. Agricult. Indes néerl. No. XVI. 18 (1890).
[2]) Jahresb. Pharm. 1908, 20.
[3]) Rec. P. B. 35 (1915). 357.

méthylique, préparé à l'aide de diazométhane, a décidé en faveur de la dernière formule. La mangiférine est donc un isomère de l'acide euxanthique; on pouvait, dès lors, s'attendre à ce que cette substance qui se convertit, par l'entremise de l'organisme animal, en acide euxanthique, puisse donner, dans des conditions appropriées, les mêmes produits de dédoublement que celui-ci.

Or, l'observation de BOORSMA, que la mangiférine ne réduit pas la liqueur de FEHLING semble mal s'accorder avec ma thèse; nous avons, cependant, levé cette difficulté en constatant que, en chauffant pendant assez longtemps la substance avec ce réactif, il se produit bien un dépôt d'oxyde cuivreux. En outre, la mangiférine fournit avec le réactif de BIAL une coloration verte, de même que d'autres substances derivées de l'acide glycuronique.

J'ai pu, du reste, mettre en évidence la présence d'euxanthone parmi les produits de dédoublement en procédant comme suit: J'ai chauffé la mangiférine pendant plusieurs heures au bain-marie avec de l'acide chlorhydrique; puis, j'ai évaporé à sec et distillé le résidu dans le vide. En opérant ainsi, j'ai obtenu un sublimé qui, soumis à des sublimations répétées, s'est transformé en prismes jaunes d'euxanthone.

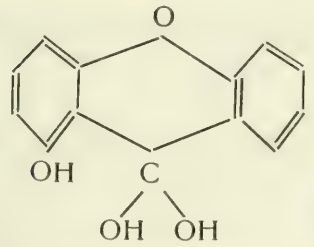
Si l'on rapproche les observations précédentes du fait que la mangiférine se convertit, dans l'organisme animal, en acide euxanthique, on peut en déduire la constitution de cette substance. Rappelons pour cela que la constitution de l'acide euxanthique a été élucidée, dans ces derniers temps, par les travaux de NEUBERG et NEIMANN [1], qui ont réussi à en faire la synthèse en faisant réagir l'acétobromoglycurone, en présence de méthylate de potassium, avec l'euxanthone, dont les recherches de ULLMANN et PANCHAUD [2] ont établi avec certitude la formule suivante:



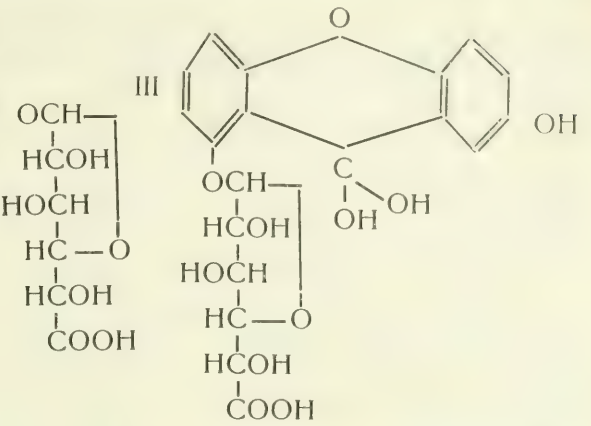
Or, cette méthode est parfaitement analogue à celle employée par E. FISCHER pour la synthèse des glucosides; cela nous permet de penser, comme NEUBERG et NEIMANN l'ont fait, que les substances conjuguées de l'acide glycuronique ont une constitution analogue à celle des glucosides. L'acide euxanthique peut, dès lors, être représenté par une des formules suivantes.

[1]) Z. physiol. Ch. 44, 114
[2]) Ann. Chem. 350, 108.

II

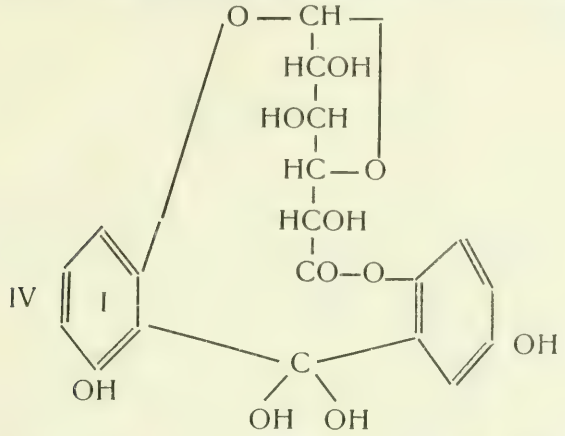


III



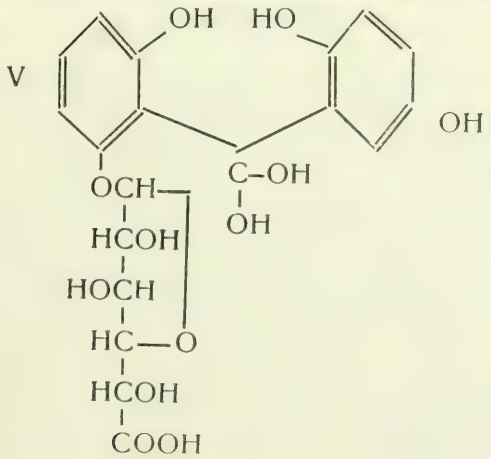
Constatons, en outre, que seule la dernière de ces formules fait prévoir la formation de l'acide euxanthique par conversion d'un isomère qui serait alors:

IV



En effet, si l'on attribue cette dernière formule à la mangiférine, on conçoit facilement que celle-ci peut se transformer en acide euxanthique par simple addition et perte d'eau, le noyau I se déplaçant pendant ce temps de 180°, de sorte que:

V



serait le produit intermédiaire de la réaction. La formule proposée rend bien compte de toutes les propriétés de la mangiférine; elle repose sur les observations suivantes:

1°. La mangiférine ne renferme pas de carboxyle libre; conformément à cette constation la copule glycuronique s'est éthérifiée, dans la formule proprosée avec un oxhydrile phénolique, de l'autre noyau benzénique, constituant ainsi une chaîne fermée contenant des carbones asymétriques.

2°. Or, la transformation d'une chaîne ouverte, contenant un carbone asymétrique, en une chaîne fermée, élève géneralement le pouvoir rotatoire [1]). On pouvait donc s'attendre à ce que la mangiférine possèdât un pouvoir rotatoire plus elevé que l'acide euxanthique. C'est, en effet, ce qui a été constaté; tandis que l'acide euxanthique est lévogyre, $[\alpha]_D = -100°$, d'après GRAEBE [2]) ou $-108°$, d'après NEUBERG et NEIMANN [3]), la mangiférine, par contre, est dextrogyre. J'ai trouvé $[\alpha]_D = +32{,}8°$.

3°. La mangiférine contient deux oxhydriles phénoliques.

5°. Elle donne un hepta-acétate.

Partie Expérimentale.

Pour préparer la mangiférine, le mieux est de partir de l'écorce du manguier, préalablement èpuisée par la benzine. On extrait celle-ci, à chaud et à plusieurs reprises, avec de l'alcool à 60 % et on évapore la solution alcoolique au bain-marie; la mangiférine se dépose alors sous forme de petites aiguilles jaunes avec un rendement de 2,5 %.

Quand on part des feuilles comme matière première, on procède d'une façon analogue, avec cette différence seulement qu'on étend avec de l'eau la solution alcoolique concentrée au bain-marie. Au bout de deux jours, le liquide est décanté du dépôt qu'on lave par décantations répétées, d'abord avec de l'eau, puis avec de l'alcool à 60 %. Le rendement a été de 1,7 %.

Mangiférine.

Recristallisée dans l'alcool, la mangiférine s'obtient en aiguilles minces et anhydres d'un jaune très pâle, fusibles à 264°, si l'on élève la température de 1° toutes les 5 secondes; le point de fusion corrigé, déterminé à l'aide d'un thermomètre d'ANSCHÜTZ, a été trouvé à 271°.

La mangiférine est peu soluble dans la plupart des dissolvants usuels, le mieux dans l'alcool à 60 %, d'où elle se dépose en petites aiguilles hydratées d'un jaune plus foncé. Lorsqu'on la met en contact, sous une lame de verre, avec une solution de bicarbonate de soude, on constate qu'il ne

[1]) Wurtz. Dict. de Chimie IIe Supp. T VII, p. 53.
[2]) Ann. Chem. 318. 350.
[3]) Z. physiol. Ch. 44. 119.

se dégage pas immédiatement de l'acide carbonique, comme c'est le cas avec l'acide euxanthique ; seulement, peu à peu, quelques bulles de gaz se manifestent. Nous en avons conclu que la mangiférine ne contient pas de carboxyle libre.

La mangiférine a le caractère d'un phénol ; elle donne avec le perchlorure de fer, en solution alcoolique, une coloration verte. En outre, elle se dissout dans la potasse avec une fluorescence verdâtre ; saturée ensuite par l'acide carbonique, la solution se prend en gelée.

La mangiférine dévie à droite le plan de polarisation. Nous avons trouvé $\alpha = +0.38°$ pour $c = 0{,}58$ dans de l'alcool à 70 % et $l = 2$ dM ; donc $[\alpha]_D^{27} = +32{,}8°$.

Elle réduit la liqueur cupro-potassique de FEHLING, quand on la chauffe suffisamment longtemps au bain-marie. Chauffée avec le réactif de BIAL, — une solution d'orcine dans de l'acide chlorhydrique concentré, additionnée d'un peu de chlorure ferrique, — elle donne une coloration verte.

La solution alcoolique se précipite par addition d'acétate de plomb ; elle donne un précipité jaune avec la baryte et un précipité d'un jaune orangé avec le réactif de MILLON. Par contre, l'acétate de magnésie ne fournit pas de précipité.

L'analyse de la mangiférine anhydre, qui ne perd rien de son poids à 110° dans le vide sur l'anhydride phosphorique, a donné des chiffres qui répondent à $C_{14}H_{14}O_8$ aussi bien qu'à $C_{19}H_{18}O_{11}$.

I. 0,1746 gr. ont donné 0,3455 gr. CO_2 et 0,0695 gr. H_2O.
II. 0,1495 „ „ „ 0,2943 „ „ „ 0,0620 „ „

$C_{14}H_{14}O_8$. Calculé : C 54,2 ; H 4,5
$C_{19}H_{18}O_{11}$. „ : „ 54,0 ; „ 4,3
Trouvé : „ 54,0 ; 53,7 ; „ 4,4 ; 4,6

Pour décider entre ces deux formules, nous avons préparé l'*éther méthylique*. Pour cela, nous avons suspendu 1 gr. de mangiférine pure dans 50 cc. d'alcool méthylique, puis nous avons ajouté 40 cc. d'une solution éthérée de diazométhane obtenue à partir de 5 cc. de nitrosométhyluréthane. Bien vite un dégagement énergique d'azote s'est manifesté ; au bout de 12 heures, le produit de réaction a été recueilli sur un filtre puis lavé avec de l'éther absolu. Le rendement a été de 0,8 gr. d'une poudre légèrement jaunâtre qui ramollit à 267°, puis fond à 276°.

La substance méthylée est peu soluble dans l'alcool, l'éther, le chloroforme, l'acétone et le benzène. Dissoute dans l'alcool, elle ne se colore pas immédiatement avec le chlorure ferrique ; seulement, bien vite, elle prend une coloration d'un rouge brun. Nous n'avons pas pu en élever le point de fusion en précipitant la solution dans l'acide acétique par de l'alcool ; aussi l'analyse du produit brut (I) a donné les mêmes nombres que celle de la substance purifiée presque blanche (II).

I. 0.1380 gr. ont donné 0.2815 gr. CO_2 et 0.0650 gr. H_2O
II. 0.1143 „ „ „ 0.2335 „ „ „ 0.0535 „ „
III. 0.2340 „ „ „ 0.2370 „ AgJ (méthode de ZEISEL)

$C_{14}H_{13}O_7$ (OCH_3). Calculé : C 55.6 ; H 4.9 ; OCH_3 : 9.6
$C_{19}H_{16}O_9$ $(OCH_3)_2$ „ : „ 56.0 ; „ 4.9 ; 2 „ : 13.8
Trouvé : „ 55.6 ; 55.7 ; „ 5.2 ; 5.2 ; „ ; 13.4

La détermination du méthoxyle par la méthode de ZEISEL a donc décidé en faveur de la formule $C_{19}H_{16}O_9$ $(OCH_3)_2$; la mangiférine elle-même doit être représentée, dès lors, par la formule $C_{19}H_{18}O_{11}$.

Recristallisée dans de l'alcool étendu, la mangiférine se dépose, comme nous l'avons vu tout à l'heure, en petites aiguilles jaunes d'un hydrate, qui s'effleurissent à l'air avec perte d'une molécule d'eau.

0.2000 gr. desséchés à l'air et traités immédiatement à 110° dans le vide sur l'anhydride phosphorique, ont perdu 0.0223 gr.

$C_{19}H_{18}O_{11} + 3H_2O$. Calculé : 3 H_2O 11.3
Trouvé : „ „ 11.2

0.2020 gr. d'un échantillon conservé à l'air pendant quelques jours, c'est à dire desséché jusqu'à poids constant, puis traité, de la même manière ont perdu 0.0160 gr.

$C_{19}H_{18}O_{11} + 2\ H_2O$. Calculé : 2 H_2O 7.9
Trouvé : „ 7.9

L'anhydride acétique convertit la mangiférine en hepta-acétate. Pour cela, nous avons dissous, peu à peu, 0,5 gr. de cette substance dans un mélange de 3 cc d'anhydride acétique et de deux gouttes d'acide sulfurique concentré, en prenant soin que le mélange ne s'échauffe pas au-dessus de 40°. Au bout d'une heure, on précipite par de l'eau le produit de réaction qu'on purifie par dissolution dans de l'alcool et addition d'une solution de chlorure de sodium. On obtient alors une substance amorphe, d'une saveur légèrement amère, soluble dans l'alcool, l'acétone, l'éther acétique, le benzène et le chloroforme ; insoluble dans l'éther et la ligroine. Elle ramollit, quand on la chauffe, à 135° et fond dans les environs de 150°.

0.1530 gr. desséchés à 110°, ont donné 0.3105 gr. CO_2 et 0.0650 gr. H_2O

0.1784 gr. saponifiés par l'alcali, puis acidulés avec de l'acide posphorique ont donné un distillat qui satura 17.5 cc d'alcali n/10.

$C_{19}H_{11}O_{11}(C_2H_3O)_7$. Calculé : C 55.3 ; H 4.5 ; 7 acétyle 17.4
Trouvé : „ 55.3 ; „ 4.7 ; „ 17.5

Il est curieux de constater que *l'acide euxanthique*, contenant 6 oxhydryles (voir form. III) ne donne, par la même méthode, qu'un dérivé tétra-acétylé. Recristallisé dans l'alcool à 80 %, celui-ci se présénte en prismes incolores et très amers, fusibles à 176°. Il est de réaction acide et fournit avec le bicarbonate de sodium, sous une lame de verre, un dégagement abondant d'acide carbonique. Desséché dans le vide sulfurique, cet acétate perd à 80° dans le vide sur l'anhydride phosphorque, une molécule d'eau provenant, évidemment, du groupe : $C<^{OH}_{OH}$ resté non acétylé.

I. 0.2620 gr. ont perdu 0.0065 gr. d'eau.
II. 0.2425 „ „ „ 0.0070 „ „
III. 0.1970 saponifiés par l'alcali, puis acidulés par l'acide phosphorique, ont donné un distillat, qui satura 13.6 cc d'alcali n/10

$C_{19}H_{14}O_{11}$ $(C_2H_3O)_4$. Calculé ; H_2O 3.0 4 acét. 13.4
Trouvé : „ 3.2 ; 2.9 : „ 13.6

I. 0.1955 gr. (anh.) ont donné 0.4020 gr. CO_2 et 0.0825 gr. H_2O
II. 0.2355 „ „ „ „ 0.4845 „ „ „ 0.0960 „ „

$C_{19}H_{12}O_{10}$ $(C_2H_3O)_4$. Calculé : C 56.7 ; H 4.2
Trouvé : „ 56.1 ; 56.2 ; „ 4.7 ; 4.5

SOME GALLS FROM HONGKONG.

by

W. DOCTERS VAN LEEUWEN.

Buitenzorg — Java.

On my way to Japan I had an opportunity to visit Hongkong for a few days and I filled in my time by making a few trips in the vicinity of the capital and in the New-Territory on the mainland of China. On these excursions I was able to look for galls, which up to present as far as I know, have not yet been described from this region. It is possible that in the article of V. FRAUENFELD „Notizen über die Fauna Hongkongs (Sitz. B. d. K. Ak. d. Wissensch. Wien. Bd. XXXV, 1859, p. 241) notes on galls may be found, but our library does not contain the above mentioned publication. Therefore a short description of the galls collected by me will perhaps be of interest to the students in this field of natural history. I am quite sure that further research will add many new forms, but the vegetation of this region which is not very rich in forms, may also account for the gallflora which is not as rich as in other hot countries. I am much indebted to the kindness of Mr. GREEN, Director of the Botanic Garden of Hongkong, who gave me the opportunity of studying the plants in the herbarium of the Garden and who provided me with an excellent Chinese guide on my trip to the New-Territory. I have not seen real virgin forests, but there were several spots in shady places along small rivulets which offered an excellent hunting ground for galls. In all I have collected 34 galls distributed as follows:

15 were caused by gallmites,
6 „ „ „ gallmidges,
4 „ „ „ thrips,
4 „ „ „ psyllidae,
4 „ „ „ moths,
1 was „ „ an aphid.

The thrips were studied by Dr. KARNY who will publish his results later. I was unable to determine the name of one plant. Most of the gall-forms occur also on Java, Sumatra and Malakka. For the determination of the infected plants I have employed the flora of Kwantung and Hongkong by Dunn and Tutcher (Kew Bulletin N. X, 1912) and the collection of specimens in the Hongkong herbarium.

Literature cited:
D. v. L. Java I: Einige Gallen aus Java. Erster Beitrag Marcellia VIII. 1909.
D. v. L. Java II: idem Zweiter Beitrag Marcellia Vol. VIII. 1909.
D. v. L. Java III: idem Dritter Beitrag Marcellia Vol. IX. 1910.
D. v. L. Java IV: idem Vierter Beitrag Marcellia Vol. IX. 1910.
D. v. L. Java V: idem Fünfter Beitrag Marcellia Vol. X. 1911.
D. v. L. Java VI: idem Sechster Beitrag Bulletin du Jardin bot. de Buitenzorg, Série II. No. III. 1912.
D. v. L. Java VII: Siebenter Beitrag Bulletin Série II. No. XV. 1914.
D. v. L. Sumatra: idem Beschreibungen von Gallen aus Sumatra und Simaloer. Bulletin Série II. No. XXI. 1916.

No. 1. **Acronychia laurifolia** BL.

Leaf-gall caused by an acarid.

This is a very common gall in Java. Its irregular yellow or lightgreen bladders are developed on the undersurface of the leaf, average size about 5 mm. (in Java up to 50 mm). On the opposite surface of the leaf is a narrower or wider aperture giving access to the gallroom, the wall of which is covered by a dense erineum. This erineum consits of branched unicellular hairs. See the subjoined figure 1.

Fig. 1. Acarid-galls on Acronychia laurifolia BL. × 3/4

New-Territory, Sha-Tin, in a young pine-forest. 10 Nov. 1920. No. 4953.

Literature: D. v. L. Java V. No. 203. p. 67.

No. 2. **Aporosa leptostachya** BENTH.

A stem-gall caused by a gallmidge.

On the bark are developed clusters of rounded galls with a small larval-chamber. The surface is covered by a light brown corky tissue. See the subjoined figure 2.

Isle of Hongkong, 8 Nov. 1920. No. 4926.

Fig. 2. Itonid-galls on Aporosa leptostachya BENTH. × 3/4

No. 3. **Aporosa leptostachya** BENTH.

A leaf-gall caused by a thrips.

In Java we found an exactly similar gall on *Aporosa microcalyx* HASSK., which was produced by *Dolerothrips trybomi* KARNY. This infection gives rise to closely packed straw-green, red or dark-purple

Fig. 3. A thrips gall on Aporosa leptostachya BENTH. nat. size

bladders which impede the full development of the leaf. When the leaf is badly attacked the vesicles may mass in compact bunches. See the subjoined figure 3. Dr. KARNY found two species of thrips in the galls: *Eothrips* nov. spec. (vic. *nervisequus*) and *Dolerothrips* nov. spec. (vic. *picticornis*).

Hongkong, in shady places, 8 Nov. 1920. No. 4922.

New-Territory, Sha-Tin, in underbrush, 10 Nov. 1920. No. 4941.

Literature: D. v. L. Java VII. No. 359. figure 162 and 163.

No. 4. **Bischofia javanica** BL.

A petiole-gall caused by a gallmidge.

Small swellings of the bark of the petiole (see figure 4) which are of a light green colour, when older the surface is covered with a light gray corky tissue. Inside there is a very narrow larval-chamber, tenanted by a gallmidge-larva.

Hongkong, in a thinly wooded locality, 8 Nov. 1920. No. 4936.

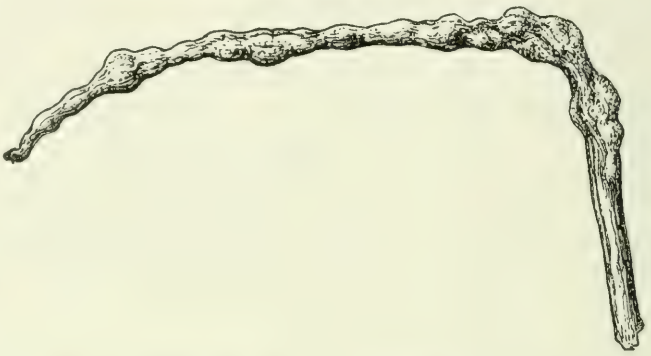


Fig. 4. An itonid-gall on Bischofia javanica BL. nat. size.

No. 5. **Breynia fruticosa** HOOK. F.

A bud-gall caused by a gallmidge.

At the end of the twigs irregular roundish swellings develop. Size about 6 mm. The surface is of a reddish-brown colour. Inside there are a few small larval-chambers. I found only one specimen. See figure 5.

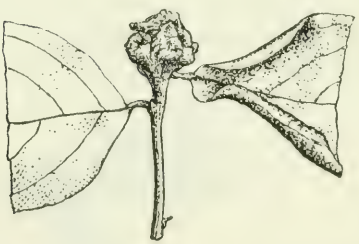


Fig. 5. A midge-gall on Breynia fruticosa HOOK. F. nat. size.

Hongkong, in a thinly wooded locality, 8 Nov. 1920. No. 4932.

Fig. 6. A moth-gall on Breynia fruticosa HOOK. F. × 3/4.

No. 6. **Breynia fruticosa** HOOK. F.

A stem-gall caused by a moth.

An almost similar gall is very common in

Java on *Breynia racemosa* BL. Its galls are spindle-shaped swellings of the twigs, about 60 mm. long and 5 mm. in diameter, and of a reddish-brown colour. Inside there is a narrow chamber, tenanted by a caterpillar of a dirty green colour. See accompanying figure 6.

Hongkong, in shady places, 8 Nov. 1920. No. 4919.

New-Territory Sha-Tin, underbrush, 10 Nov. 1920. No. 4951.

Literature: D. v. L. Java II. No. 25.

No. 7. **Bridelia tomentosa** BL.

A bud-gall caused by a moth (prob.).

The buds are extended into green fusiform, or onionlike galls. Average size about 6 mm. long and 3 mm. in diameter. Mostly swollen at their base and ending in a point. Inside there is a wide larval-chamber. All the galls found by me were empty, but it is probable that the gallformer is a caterpillar. See the accompanying figure 7.

Fig. 7. A moth-gall on Bridelia tomentosa BL. nat. size.

New-Territory, Sha-Tin, underbrush, 10 Nov. 1920. No. 4945.

No. 8. **Bridelia tomentosa** BL.

A leaf-gall caused by a psyllida.

On the underside of the leaf these galls form small conical outgrowths, situated mostly near the main nerve; they are of a light-green colour. See figure 8. The average size of these outgrowths is 1 mm. On the reverse side these galls are seen as small rounded hardly visible swellings. The opening, which gives entrance to the gallchamber is on the underside of the gall.

New-Territory, Sha-Tin, underbrush, 10 Nov. 1920. No. 4948.

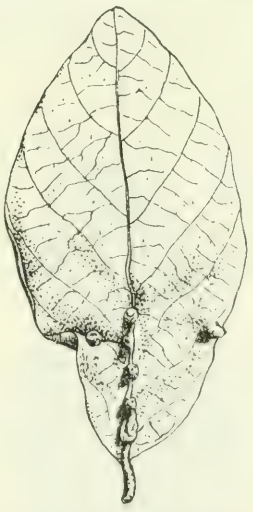


Fig 8. Psyllid-galls on Bridelia tomentosa BL. nat. size.

No. 9. **Eugenia Millettiana** HEMSL. (prob).

A stem-gall caused by a gallmidge.

The ends of the twigs are swollen into irregular ballshaped or oval galls. They consist of the stem-apex, and sometimes rudiments of the leaves are developed on the gall. Occasionally they can develop in the axils of the leaves. Average size 3—6 mm. in diameter. Inside there is a watery tissue in the centre of which are several small rounded larval-chambers. See figure 9.

Fig. 9. A midge-gall on Eugenia Millettiana HEMSL. nat. size.

New-Territory, Sha-Tin, underbrush. 10 Nov. 1920 No. 4943.

Literature: D. v. L. Java IV. No. 169. fig. 69.

No. 10. **Evodia triphylla** DC.

A leaf-gall caused by a gall-mite.

This gall resembles closely the mite-gall on *Evodia accedens* BL. caused by *Eriophyes evodiae* NAL. The small flat bladders are to be found on the upper-surface of the leaf. On the reverse side, these bladders are covered with a white erineum. The bladders are irregularly rounded and of about 8 mm. diameter.

New-Territory, Sha-Tin, underbrush. 16 Nov. 1920. No. 4950.

No. 11. **Faradaya splendida** F. MUELL.

Leafgall caused bij an aphid.

The leaves are shriveled and folded. Like the case of infections by *Aphidae* the leafblade grows out beyond the main nerve which remains shorter. Often the tops of the twigs bear bunches of infected leaves. See figure 10.

Hongkong, Botanic Garden, 6 Nov. 1920. No 4916.

Fig. 10. An Aphid-gall on Faradaya splendida F. MUELL. $\times$ 3/4.

No. 12. **Ficus chlorocarpa** BENTH (prob).

A leaf-gall caused by a psyllida.

Fig. 11. Psyllid-galls on Ficus chlorocarpa BENTH. $\times$ 3/4.

The plant from which I collected the gall was a small shrub without fruit and therefore I could not determine the real name, perhaps it may be the above mentioned species. The gall closely resembles the psyllida-gall on *Ficus glomerata* ROXB. very common in Java and also found by me in Siam. The uppersurface of the leaf was thickly covered with reddish or red ballshaped swellings, about 3 mm. in diameter. See figure 11. On the undersurface there are small swellings with an aperture in each leading into a spacious gall-chamber.

New-Territory, Sha-Tin, along a dry ditch. 10 Nov. 1920, No. 4944.

Literature: D. v. L. Java IV. No. 172.

No. 13. **Ficus retusa** L.

A leaf-gall caused by a thrips.

Very common in all tropical countries from North-Africa to the Dutch East Indies. Both halves of the leafblade remain smaller and are folded together, so that the underside of the leaf forms the ouside of the gall. The galls are mostly reddish brown in colour. The thrips inside

the gall, were studied by Dr. KARNY, who discovered the following species: *Cryptothrips* nov. spec. (vic. *nigripes*); *Gynaikothrips uzeli* ZIMM.; *Leptothrips constrictus* KARNY and *Mesothrips jordani* ZIMM.

Hongkong, along roadsides, 6 Nov. 1920. No. 4912.

New-Territory, near the railway station of Sha-Tin.

10 Nov. 1920. No. 4947.

Literature: D. v. L. Java. II. No. 41.

No. 14. **Ficus retusa** L.

A leaf-gall caused by a gallmidge.

Small light green flat swellings on both sides of the leafblade mostly more or less arranged in a row from the base to the apex of the leaf, or only over a part of this distance. Average size about 2 mm. See figure 12. Inside there are 2 to 3 very small larval chambers surrounded by a hard tissue. Known also from Java.

Fig. 12. Itonid-galls on Ficus retusa L. × $^3/_4$.

New-Territory, Sha-Tin, Railwaystation. 10 Nov. 1920. No. 4955.

Literature: D. v. L. Java V. No. 222.

No. 15. **Ficus** spec.

A leaf-gall caused by a psyllida.

The tree bearing the galls was planted along a roadside on the south side of Hongkong island. The plant bore no fruit, therefore it was not possible to determine it. It resembles closely the well known *Ficus variegata* BL. of Java. But this species of *Ficus* is not mentioned in the flora of Hongkong. Perhaps it is: *Ficus ramentacea* ROXB. which also has cordate leaves. The galls resemble closely the psyllid gall on *Ficus variegata*. These ballshaped brown excrescences are found on the upper surface of the leaf, about 5 mm. in diameter. On the lower surface there are only small openings.

Hongkong, along a roadside. 8 Nov. 1920. No. 4930.

Literature: D. v. L. Java III. No. 112.

No. 16. **Ficus** spec.

Bark-gall caused by a psyllida.

On the bark of the twigs or petioles of seedlings are developed ballshaped conical light green excrescences from 3—10 mm. in diameter. Inside there is a spacious larval-chamber with a very thin wall.

Little Hongkong, in shady places, on young seedlings, about 300 feet above sealevel. 8 Nov. 1920. No. 4928.

No. 17. **Glochidion hongkongense** M. A. (prob).

A leafgall caused by a moth.

On the underside of the leaf are developed big oval swellings of a light green colour. They are more or less pointed. See figure 13. On the opposite surface of the leaf they are hardly to be seen, except only as small convexities or flat swellings which show the place of attachment of the gall. Inside there is a long narrow larval-chamber surrounded by a thick wall. Often the leaves were totally covered with the galls.

Fig. 13. Moth-galls on Glochidion hongkongense M. A, nat. size.

New-Territory, Sha-Tin, underbrush. 10 Nov. 1920. No. 4954.

No. 18. **Grewia microcos** L.

A leafgall caused by a gallmite.

On the uppersurface of the leaf are developed irregularly rounded brown swellings of about 2—4 mm. in diameter. On the other side of the leaf the gall is hardly visible, only a small aperture with a low hairy wall is developed. This gall I have found in Singapore, Penang and Bangkok and I have described it as also occurring in Sumatra.

In a thin forest on the island of Hongkong; about 150 feet above sealevel. 8 Nov. 1920. No. 4921.

Literature: D. v. L. Sumatra. No. 19. fig. 19.

No. 19. **Hibiscus mutabilis** L.

A leafgall caused by a gallmite.

On the upperside of the leaf are developed irregular rounded bladders size from 1—10 mm. They are thickly covered with long white hairs. On the underside these bladders are covered by a thick velvetlike erineum. Often the whole leaf may be covered by the gallbladders. They can also grow on the leaves of the calyx.

Hongkong, Botanic Garden. 6 Nov. 1920. No. 4914.

No. 20. **Hibiscus tiliaceus** L.

A leafgall caused by a gallmite: *Eriophyes hibiscitileus* NAL.

A gall common on tropical beaches and described from many places. Irregular, white, green or reddish bubbles on the upperside of the leaf. These are also developed on the underside of the leafblade, where the opening of the gall is found.

Hongkong, on the beach, 8 Nov. 1920. No. 4931.

New-Territory, Sha-Tin, roadside near the railwaystation. 10 Nov. 1920. No. 4949.

No. 21. **Ipomoea** spec.

A leaf, petiole and stem gall caused by a gallmite.

On the leaves they are developed on both sides. On the upperside more or less hemi-spherical; on the underside conical, with an opening on the top of the gall; about 2 mm. in diameter. On the petioles and stems they are conical or oval outgrowths of the bark with an aperture on the top of the gall. See figure 14. The inside of the gallchamber is divided by outgrowths from the inner wall.

Fig. 14. Mite-galls on Ipomoea spec. nat. size.

Hongkong, in a thinly wooded locality, about 300 feet above sealevel, 8 Nov. 1920. No. 4924.

New-Territory, Sha-Tin, underbrush, 10 Nov. 1920. No. 4952.

Fig. 15. Mite-galls on Nephelium longana CAMB. nat. size.

No. 22. **Nephelium longana** CAMB.

A leafgall caused by a gallmite.

On the uppersurface of the leaf are developed irregular oval bladders, 2—10 mm. in diameter. See the subjoined figure 15. On the reverse side the bladders are covered with a white erineum, which later becomes brown.

Hongkong, Botanic Garden, 6 Nov. 1920. No. 4917

No. 23. **Nephrolepis hirsutula** PR.

A leafgall caused by a gallmite: *Eriophyes pauropus* NAL.

A very common gall of the tropical countries of Asia. Irregular conical or ballshaped excrescences of the leafblade situated mostly on the edge of the leaf.

Mr. V. ALDERWERELT VAN ROSENBURGH the well known fern specialist of the Buitenzorg Herbarium told me that the plants collected by me belong to a form between *N. hirsutula* PR. and *N. tomentosa* V. A. V. R. Both forms are not described in the flora of Hongkong. Judged by the flora of Hongkong, I should think my specimen is *N. exaltata* SCHOTT.

Hongkong, Botanical Garden, 6 Nov. 1920. No. 4915.

Literature: D. v. L. Java I. No. 16. fig. 11.

D. v. L. Ueber die von *Eriophyes pauropus* NAL. an verschiedenen Arten von *Nephrolepis* gebildeten Blattgallen. Annales du Jardin botanique. Vol. XXXI. 1921. p. 83.

Fig. 16. A moth-gall on Phyllanthus Emblica L. × 3/4.

No. 24. **Phyllanthus Emblica** L.

A stem-gall caused by a moth.

Spindleshaped swellings of the woody tissues of the stem, covered by the brown bark of the normal stem. Inside there is a spacious larval-chamber tenanted by a caterpillar. See figure 16.

Hongkong, Eastern part of the island, on rocky coast. 8 Nov. 1920. No. 4923.

No. 25. **Piper Hancei** MAXIM.

A leafgall caused by a thrips: *Gynaikothrips chavicae* (ZIMM).

The leaves are folded or curved around the main nerve and are covered with white bubbles which lie in rows or groups and may cover the whole leaf. See figure 17.

Hongkong, young forest, about 300 feet above sealevel. 8 Nov. 1920. No. 4918.

Fig. 17. A thrips-gall on Piper Hancei MAXIM. × 3/4.

No. 26. **Piper sarmentosum** ROXB.

A leafgall caused by a thrips: *Gynaikothrips chavicae* (ZIMM).

Fig. 18. Mite-gall on Rhus hypoleuca CHAMP.

The gall resembles more or less the foregoing one, but the attacked leaves are often white or yellowish. Very common in Java, but there they are formed by *Gynaikothrips pallipes* KARNY.

Hongkong, in shady places, about 300 feet above sealevel. 8 Nov. 1910. No. 4925.

Literature: D. v. L. VII. No. 478.

No. 27. **Rhus hypoleuca** CHAMP.

A leafgall caused by a gallmite.

The upperside of the leaf is covered with hundreds of minute pustules, which have a yellow or redbrown colour. On the reverse side a white, velvetlike erineum is developed consisting of long white hairs. Size between 1/2 — 1 mm. See figure 18.

New-Territory, Sha-Tin, along a road. 10 Nov. 1920. No. 4942.

No. 28. **Rhus succedana** L.

A leafgall caused by a gall-mite.

Same gall as in the foregoing on *Rhus hypoleuca* CHAMP. but not so abundant on the leaf. Moreover the surface of the gall is not yellow or redbrown, but more light green or yellowish green. See figure 19, which shows the underside of the leaf.

Hongkong, in open places, about 60 feet above sealevel. 8 Nov. 1920. No. 4940.

Fig. 19. Mitte-galls on Rhus succedana L. nat. size.

No. 29. **Schefflera octophylla** (= *Heptapleurum oct.* HANCE).

A leafgall caused by a gall-mite.

On either surface are developed granular patches which consist of light-greenish outgrowths of the epidermis of the leaf. Yellow bladders with the granular patches on their convex or on the concave sides may also be developed. In Java we found a similar gall on species of *Macropanax*.

Hongkong, Botanic Garden, 6 Nov. 1920. No. 4913.

Literature: D. v. L. VII. No. 454 and 455. figure 208.

No. 30. **Toxocarpus Wightianus** HOOK.

A leafgall caused by a gall-mite.

On the upperside of the leaf are formed small granular irregular patches of a bright-red colour. On the underside no trace of the gall is to be seen.

Hongkong, underbrush near the sea. 8 Nov. 1920. No. 4935.

Fig. 20. Moth-galls on Uvaria microcarpa CHAMP. × 3/4.

No. 31. **Uvaria microcarpa** CHAMP.

A leafgall caused by a gallmite.

The underside of the leaf is partly covered with a red brown erineum which in the beginning is white. The galls are really large bladders, which may change the form of the whole leaf. A similar gall has been described by A. TROTTER on *Uvaria macrophylla* from Singapore.

Hongkong Island, thinly wooded locality. 8 Nov. 1920. No. 4939.

Literature: A. TROTTER. Miscelanee cecidologiche. Marcellia Vol. XVI. 1917. p. 150.

No. 32. **Uvaria microcarpa** CHAMP.

A stemgall probably caused by a moth.

Spindleshaped swellings of the woody tissues of the stem, covered by the ordinary, but not thickened bark. The galls were abandoned by the gallformers which probably are moths. See figure 20.

Hongkong Island, thinly wooded locality. 8 Nov. 1920. No. 4937.

No. 33. **Vitex heterophylla** ROXB.

A leafgall caused by a gallmite.

On either surface of the leaf are developed round granular patches of a bright white colour. Average size about 3 mm. On the reverse side the galls are hardly discernable. The gallgrowth consists of peculiarly formed hairs, which are clubshaped and multicellular.

Hongkong Island, near Repulse-bay in thinly wooded locality. 8 Nov. 1920. No. 4938.

Literature: D. v. L. Java VII. No. 689. p. 73.

No. 34. **Rubiacea.**

On a shrub which was flowering belonging to the above mentioned family, I found a gall caused by a gall-mite. It seems better to leave the determination of this gall to another scientist, who collects material in Hongkong. Descriptions of galls on plants which have not been determined are of no use, if they have no striking features, which is true in this case.

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Auctore

D. F. VAN SLOOTEN.

Casearia JACQ.

flavovirens BL., Patria? III F 41; IV F 20.

Flacourtia (COMM.) L'HÉRIT.

inermis ROXB., Patria? IV F 13, 37, 68, 73; XI H 51; XI I 20.

Jangomas (LOUR.) RAEVSCH., Borneo [1]): IV F 3.

Patria? IV F 1, 2, 65.

Rukam Z. et M., Banka: IV F 115.

Patria? XI G 108.

Hemiscolopia V. SL.

trimera (BOERL.) V. SL., Banka: IV F 69.

Patria? IV F 71.

Homalium JACQ.

tomentosum (VENT.) BTH., Patria? IV F 57, 59.

Hydnocarpus GAERTN.

alpina WIGHT, Siam: II I 5, 17.

Patria? IV A 23; IV F 10, 11.

venenata GAERTN., Patria? IV F 48; IX B I 11.

Pangium (RUMPH.) REINW.

edule REINW., Patria? II P 105; IV F 52; XI B XIII 3.

Ryparosa BL.

caesia BL., Java: III F 14.

javanica (BL.) KURZ., Patria? III F 15; VIII F 73; IX A 31, 32.

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[1]) Habitatio, non distributio.

Scolopia SCHREB.
Roxburghii (BENN.) CLOS., Sumatra: IV F 70.
Patria? IV F 103.

Taraktogenos HSSKL.
heterophylla (BL.) V. SL., Patria? IV F 55a, 56, 58.

Xylosma G. FORST.
amara (SPAN.) KDS., Patria? IV F 129.

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Auctore

D. F. VAN SLOOTEN.

Anogeissus WALL.
acuminata WALL., Patria? XV K B LXIX 2.

Lumnitzera WILLD.
racemosa WILLD., Java [1]): II Q F 6.

Combretum L.
abbreviatum ENGL., Patria? XVIII B 28, 37.
chinense ROXB., Patria? XVIII B 29.
decandrum ROXB., Patria? XVIII B 24, 50.
latifolium BL., Java: XVIII B 30, 36.
Celebes: XVIII B 46, 48.
Patria? XVIII B 25, 32, 38, 57, 58.
Loeflingii EICHL., Patria? XVIII B 45a.
pilosum ROXB., Patria? XII B VIII 2; XVIII B 52.
punctatum BL., Patria? XVIII B 33.
quadrangulare KURZ., Siam: VII D 55a.
sundaicum MIQ., Borneo: XVIII B 22.
Patria? XVIII B 41.

Terminalia L.
arborea (T. et B.) KDS., Sumatra: VII D 15.
Celebes: VII D 18; X F 40a.
Patria? VII D 14, 37; XII B VIII 120, 123; XII B IX 1.
Arjuna W. et A., Patria? VII D 28, 32; VII F 24.
belerica ROXB., Sumatra: VII F 7.
Patria? VII F 25, 29, 30a, 33, 36; VI A 18.

[1]) Habitatio, non distributio.

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Celebes: VII F 42.
Suriname: VII D 30.
Patria? VII D 31; VII C 20a.
Chebula RETZ., Patria? VII D 34.
edulis BLANCO, Borneo: VII F 27.
Patria? VII F 28.
macrocarpa V. SL., Patria? VII D 26.
sumatrana MIQ., Sumatra: VII F 32.

Quisqualis L.
indica L., Borneo: XVIII B 27.
Siam: XVIII B 47.
Patria? XVIII B 34, 59, 60, 62; XII B VII 140.

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officinalis L. Patria? XV K A XLV 9.
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supina L. Patria? XV K A XLIV 3.
venosa GILL. et HOOK. Patria? XV K A XLV 5.

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Camara L. Patria? XV E 46, 47, 48, 49, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60.
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Lippia L.

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THE GALLS OF THE ISLANDS OF THE KRAKATAU-GROUP AND OF THE ISLAND OF SEBESY

by

W. DOCTERS VAN LEEUWEN

(Buitenzorg).

Introduction.

In a previous article [1]) the new gall-flora of Krakatau was discussed by me. The reader may be assumed to be aware that in 1883 Krakatau was completely devastated, stripped of all animal and vegetable life, and it was therefore worth while investigating to what extent the galls had also got back to this island after the new flora had been formed. Not only Krakatau was ravaged by this eruption, all the islands in the Sunda Strait and the adjacent coasts of Sumatra and Java suffered more or less. The Island of Sebesy, situated at only 19 miles' distance from Krakatau (see the map on table 1) was hit hardest. But the devastation had not gone so far as that of the islands of the Krakatau group.

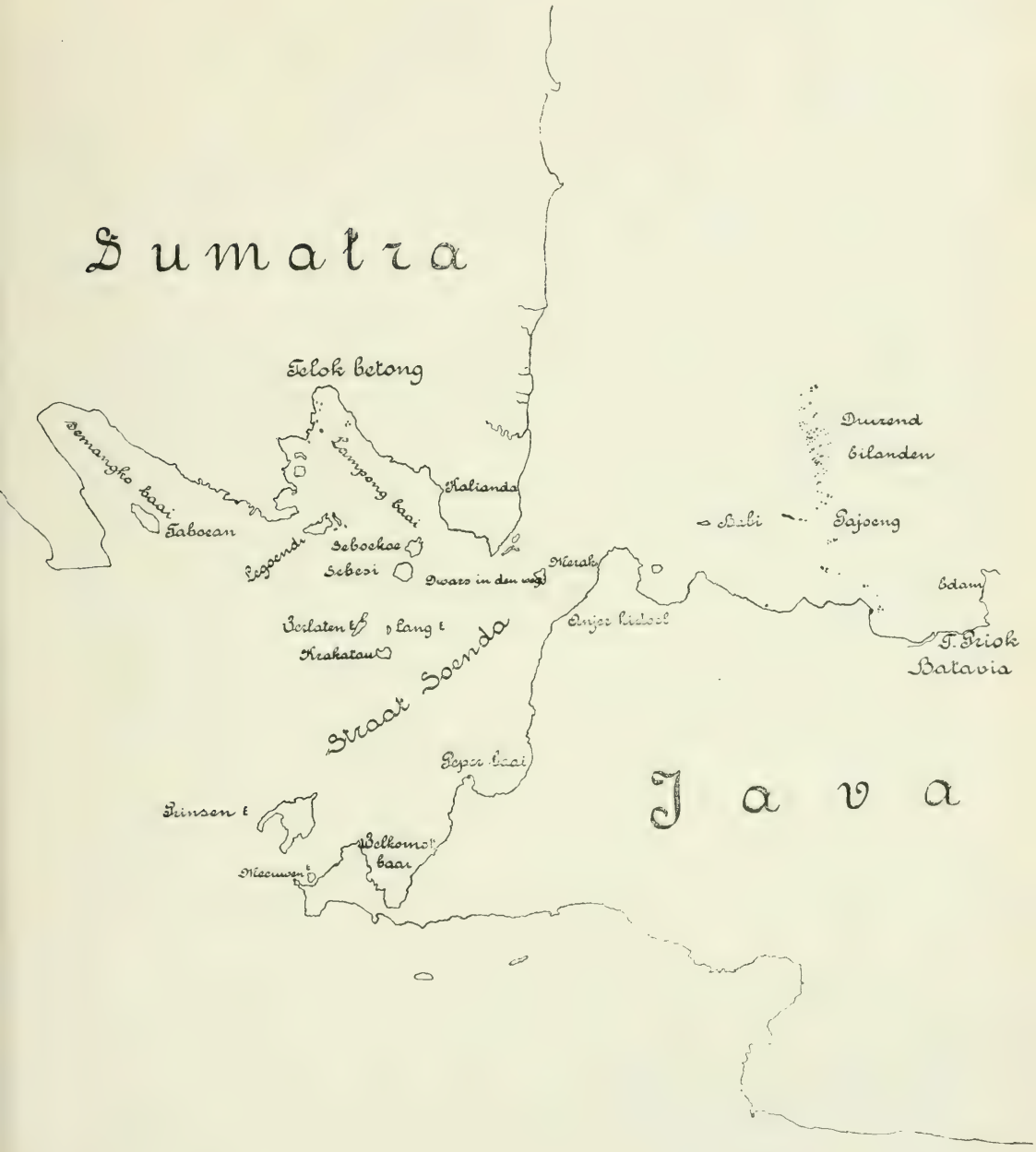
During the excursions which were made on the island of Sebesy for the purpose of becoming acquainted with the new flora, I had also opportunities of collecting galls, though attention could not be devoted exclusively to this subject. Although the vegetation was probably not entirely destroyed, and has been partially restored from rhizomes, tree-stumps and seeds, we may assume that the galls had disappeared altogether from the island and could not return there until after a considerable lapse of time, seeing that hardly any plants were present on the island during the first year. As the flora was soon far richer than that on the far more intensely ruined Krakatau, the chances for the recuperation of the gall-flora were greater, and I accordingly found on Sebesy a number of varieties not yet occurring on Krakatau, and which indeed could not occur there because the plants on which the galls grow had not yet reached the islands of the Krakatau-group.

On Krakatau and Verlaten Eiland I made several more trips after my first visit in April 1919 and the number of galls now found by me already amount to 44, which is indeed a large number, when one considers that the flora is as yet very poor in the number of different species of plants, and that the gall-producing creatures had to be conveyed over so great a

[1]) W. DOCTERS VAN LEEUWEN. The galls of "Krakatau" and "Verlaten Eiland" (Desert Island) in 1919. Annales du Jard. Bot. Buitenzorg. Vol. XXXI. 1920. p. 57.

ERRATA.

On page 288, line 9: „table 1" should be „table 13".



Map of Sunda Strait. 1: 2.000.000

distance. Of these phenomena I have already treated in my article just mentioned to which I may refer the reader. At that time I was not aware of an article by FELT [1]), on the distribution of the gallmidges, in which some important observations are communicated regarding the manner of the distribution of these creatures. He informs us e. g. that the gallmidge-galls may be spread by birds, such as the galls formed by *Cincticonia*, which are eaten by birds. In galls with a thick-walled gall-cavity the inmates might perhaps pass through the intestinal canal of birds without being digested. Still this manner of distribution cannot be of great importance according to FELT, who lays more stress on the spreading by the wind, when either the creatures are simply blown along, or they actively aid the wind by flying along with it.

In my previous article I pointed to the possibility of the gallmidges having come over by floating or drifting from coast to coast inside their galls. But it had not yet been demonstrated that such galls could stand such a prolonged transport without peril. During my last stay at Verlaten Eiland I was in a position to test this point, albeit for only one species of gall. I was dwelling in a tent at the edge of the saltwater lake, whose salinity does not differ much from that of seawater. In the vicinity of this place the gall-midge gall on *Clerodendron inerme* was very prevalent. I gathered a number of twigs studded with galls, tied them together and then let them float about in the lake for a week fastened by a rope to a pole in the lake. A part of them was regurlarly above water, another part was regularly submerged, and was tossed about, though not so briskly as in a billowy sea. After this week all the galls were still normal, they had remained green and the gall-creatures inside the galls were very much alive. I think I may assume that also other species may keep alive for a shorter or a longer time in the sea, when enclosed in their galls. ERNST [2]) in his well-known study of the new flora of Krakatau has already discussed the point that, wind and weather permitting, the distance from Java and Sumatra to these islands may be traversed within a few days by things carried by a current in the sea. As to the distribution of other kinds of gall-creatures we are still in many respects in the dark.

I already pointed out in my earlier article that these galls ought not to be used as proofs of the antiquity of a flora, the number of varieties of galls that have crossed to these islands being so great. In all I have already found on Krakatau and Sebesy together as many as 82 forms of galls. It is therefore certainly not possible to speak of accidental circumstances here.

Both on Krakatau and on Sebesy the number of gall-mite galls is preponderant; this is a corollary not only of the degree of ease with which

[1]) E. F. FELT. Distribution of Gall-Midges. Proceedings of the Nation. Acad. of Science. Vol. III. 1917. p. 349.

[2]) A. ERNST. Die neue Flora der Vulkaninsel Krakatau. Vierteljahrschr. der Naturw. Gesellsch. in Zürich. Jahrg. 52. 1907.

the creatures are transported, but also of the condition of the flora. The sparse forest, the open spaces especially on the former island are more conducive to the development of mite-galls than of the more aqueous galls formed by gall-midges, as was also discussed already in mij older article.

Out of the 82 galls, 19 occur both on Krakatau (inclusive of Verlaten Eiland) and on Sebesy; 25 are entirely new to me or not yet described and have been marked in this article with an *.

All the finding-places and numbers also from the former publication have been noted again. The materials are accordingly to be consulted afterwards at the Herbarium of the Botanical Gardens of Buitenzorg.

The spreading of the mite-gall on *Ficus hispida* L. is peculiar. This gall was already described by me as occurring on Sumatra (under the wrong name of *Ficus hirta* BL.). I found this gall very abundantly on Sumatra and also on my tour through Malacca, in Singapore, Kuala Lumpur, Penang, Bangkok and Saigon, but thus far I have not yet found it in Java, though this variety of *Ficus* is quite common here and I have repeatedly paid attention to it. Concerning this gall we are therefore probably justified in assuming that the mites made their way to these islands from Sumatra. Another fact militating for this view is that it is quite abundant on the island of Sebesy, which is situated near to Sumatra; whereas on Krakatau, where that species of tree is also very abundantly found, I only found one specimen there, and not till my third excursion.

On Krakatau I found on 4 excursions, 44 forms of galls; out of this total

23 produced by gall-mites.
11 „ „ gall-midges.
4 „ „ aphides.
1 „ „ a coccide.
3 „ „ psyllidae.
1 „ „ a moth.
1 „ „ an unknown parasite.

On Sebesy were found on two excursions 57 forms of galls,

24 produced by gall-mites.
17 „ „ gall-midges.
1 „ „ an aphid.
1 „ „ a coccide.
7 „ „ psyllidae.
6 „ „ thripses.

Unfortunately the proof-reader in Holland made some confusing alterations in the text of my former article, without my knowledge. Not only has the punctuation been entirely changed, but some sentences have been altered in such a way, or words have been added, that the sense has been

either distorted or lost. Below follows the correction of the most disturbing errors.

p. 58, l. 8 from top, "this is after all no matter", read: "this is after all no matter for surprise".

p. 60, l. 8 from top: "the gall-mites may be carried by *other* insects or by winds", — this should be: "the gall-mites may be carried by insects or by winds".

p. 60, l. 12. from top: "there remains then the distribution of the *insects* by the wind". *Insects* must be *mites!*

p. 61, l. 20 from top "distribution of the insects by the wind", ought to be: "of the mites by the wind".

p. 62, l. 9 from top: "the study of the Krakatau galls does not confirm these hypotheses", must be: "has sapped the basis of these hypotheses".

p. 62, l. 15 from bottom: "On the contrary I found", drop, "on the contrary".

p. 64, l. 13 from top: "a leafbud and stem-gall", read "a leaf- bud- and stem-gall".

As regards the literature I have usually cited only the most recent article where the gall in question was discussed. In the place quoted the further literature is usually found.

Description of the galls collected. [1])

No. 1. **Alstonia scholaris** R. BR.

A leaf-gall caused by a psyllida: *Pauropsylla tuberculata* CRAWFORD. The gall is developed on the upper- and on the undersurface of the leaf. On the upperside the gall is half globular and about $2^1/_2$ mM. across; on the underside it is conical with a blunt apex. In the top there is a narrow opening corresponding through a canal with the larval cavity. The gall is

[1]) The literature cited under the descriptions of the galls is:

D. v. L. I: J. und W. DOCTERS VAN LEEUWEN. Einige Gallen aus Java. Beitrag I, Marcellia. Vol. VIII. 1909. p. 21.

D. v. L. II: Idem. Beitrag II. Marcellia. Vol. VIII, 1909. p. 83.

D. v. L. III: Idem. Beitrag III. Marcellia. Vol. IX, 1910. p. 37.

D. v. L. IV: Idem. Marcellia. Vol. IX. 1910. p. 168.

D. v. L. V: Idem. Marcellia. Vol. X. 1911, p. 65.

D. v. L. VI: Idem. Bulletin du Jardin Botanique de Buitenzorg. Série II. No. III. 1922. p. 1.

D. v. L. VII: Idem. Bulletin etc. Série II. N. XV. 1914. p. 1.

D. v. L. VIII: Idem. Beitrag VIII. Bulletin etc. Série III. Vol. I. 1918. p. 17.

D. v. L. Sumatra: Idem. Beschreibungen von Gallen aus Sumatra und Simaloer. Bulletin, etc. Série II. N. XXI. 1916. p. 3.

D. v. L. Celebes: Idem. Beschreibungen von Gallen aus Celebes und aus den Inseln südlich von Celebes. Bulletin etc. Série II. N. XXI. 1916. p. 21.

D. v. L. Krakatau: Idem. The Galls of Krakatau and Verlaten Eiland. Annales du Jardin Botanique de Buitenzorg. Vol. XXXI, 1920. p. 57.

very common in tropical countries and described from Java and other islands and by UICHANGO from the Philippine islands.

Sebesy-island, April 28th 1921, No. 5407.

Literature: 1) D. v. L. Java. III. No. 93. fig. 49;
2) L. UICHANGO. a biol. and syst. study of Phillippine plant-galls. Phil. Journ. of Science. Vol. XIV. 1919. p. 544. Plate XII. fig. 2 and 3.

Fig. 1. A midge-gall on Antidesma Bunius SPR. × 1.

No. 2. **Antidesma Bunius** SPR.

A leaf-gall caused by a gall-midge.

A very common gall on this appreciated fruit-tree. They are developed towards both surfaces of the leaf. On the uppersurface they are semi-globular dark green and glabrous (glossy) swellings, measuring about 5 mM. across. On the undersurface the galls are circular discoid swellings; as can be seen in the subjoined figure 1a. Inside there is a circular flat larval chamber.

Sebesy-island, in a native-village, April 22nd 1921, No. 5092.

Literature: 1) D. v. L. Java VIII. No. 518 with figure.

No. 3. **Avicennïa marina** (FORSK.) VIERH. var. **intermedia** (GRIFF.) BAKH.

A leaff-gall caused by a gall-midge: *Stefaniella falcaria* FELT.

A very common gall on this mangrove-plant; ball-shaped excrescences on the mid-rib of the leaf; see the accompanying figure.

Sebesy-island, tidal-forest. April 23th. 1921. No. 5201.

Literature: 1) D. v. L. Java. Beitrag III. Marcellia. Vol. IX. 1910. p. 40.
2) D. v. L. Additional Notes to the article of Mr. E. F. FELT on Javanese Gall-midges. Treubia. Vol. I. 1921. p. 153.

No. 4. **Avicennia marina** (FORSK.) VIERH. var. **intermedia** (GRIFF.) BAKH.

Leaf-gall caused by a gall-midge: *Stephaniella falcaria* FELT.

A tiny excrescence developed on both sides of the leaf. Also common in Java but mostly difficult to find owing to its small size.

Sebesy-island, April 23th 1921. No. 5199.

Literature: See foregoing gall.

No. 5. **Bridelia tomentosa** BL.

A bud-gall caused by a gall-midge.

The end-buds of the twigs are swollen into irregular semi-ballshaped or conical galls measuring 10—20 mM. across. The surface is glabrous but covered with the cicatrices of the leaf-rudiments. Often the leaves are developed but remain smaller than the normal ones. See the subjoined figure. Inside the gall there is one larval chamber with a thick parenchymatous wall. The surface is often covered with a corky tissue. Common in Java.

Fig. 2. A midge-gall on Bridelia tomentosa BL. × 1.

Sebesy-island, April 22nd 1921, No. 5111.

Literature: D. v. L. VII. No. 365 figure 65.

* No. 6. **Calanthe Zollingeri** RCHB. F.

Flower-gall caused by a gall-midge.

The flower remains closed and is altered into a ball-shaped gall.

The leaflets are thick and soft and the generative organs, with the exception of the ovary, are hardly developed. The gall-chamber so formed is tenanted by a white gall-gnat larva. The ovary too is swollen though it takes no part in the gall-formation. The same was the case in flowergalls of two other orchids, *Eria obliterata* RCHB. F. collected by me, [1]) and *Liparis latifolia* LINDL. described by TREUB [2]).

Sebesy-island, hill-top forest, about 700 M. April 25th 1921. No. 5269.

Literature: [1]) D. v. L. Java VII. No 399, figure 181.
[2]) M. TREUB. Abnormaal gezwollen ovariën van Liparis latifolia LINDL. Nederl. Kruidk. Archief. 1881. Serie 2. Vol. III. p. 404.

* No. 7. **Calophyllum Inophyllum** L.

A leaf-gall caused by a lepidopteron.

These galls form long somewhat curved excrescences on the underside of the leafblade. They are about 30 mM. long and in the centre 4 mM. broad, they are pointed at both ends and from the middle to the ends they become regularly narrower. At the uppersurface there is only a very flat swelling, hardly to be seen. Inside there exists an irregular larval chamber; the caterpillar eating the tissues of the gall only a thin epidermis remains.

Verlaten-island, in the Casuarina-forest. April 22nd 1920. No. 4031.

* No. 8. **Cassytha filiformis** L.

A gall on the flower-stalks caused by an unknown animal.

This gall was abundant on the beach of Verlaten Eiland, but no

Fig. 3. A flowergall on Cassytha filiformis L. × 1.

as a year ago, the plants were badly infected and covered with thousands of galls forming thick clusters especially on the stem. See the subjoined figure 4.

Verlaten-island, April 27th 1919, No. 3726b; and April 22nd 1920, No. 4058.

Literature: D. v. L. Krakatau Nol. figure 1 and 2.

No. 10. **Conocephalus suaveolens** BL.

A leaf-gall caused by a thrips: *Eothrips taurus* (KARNY).

On this plant I collected in Java 6 different varieties of thrips-galls. trace of a gall-producer was to be found. It is a kind of witches' broom, the internodes of the flowerstalks remaining short so as to form bunches with the flowers accumulated (close together). The gall-former may be a coccid or aphid.

Verlaten-island, on the beach, April 27th 1920. No. 4178.

No. 9. **Clerodendron inerme** GAERTN.

A gall on the leaf, bud and stem, formed by a gnat.

Described in my first publication on the galls of Krakatau. I found the same gall in the same spot

Fig. 4. A midge-gall on Clerodendron inerme GAERTN, × 1/2.

This one is a rolling of the leaf-border to the upperside of the leaf. The surface of the gall is rough and of a reddish colour.

The wall of the gall is thickened and brittle, breaking if one tries to open it. On Java this gall was also tenanted by *Dolerothrips taurus* KARNY (syn. *Eothrips taurus* (KARNY).

Sebesy-island, in the virgin forest of the mountain about 200 M. elevation, April 25th. 1921. No. 5240.

Literature: D. v. L. VII. No. 380.

Coccinea cordifolia COGN.

See the description of the gall of *Trichosanthes tricuspidata* LOUR.

No. 11. **Derris heterophylla** BARKE.

A flower-gall formed by a gall-gnat.

Described in my former contribution on the galls of Krakatau. (syn. *Derris uliginosa* BENTH.)

Island of Krakatau, April 24th 1919. No. 3512.

Literature: D. v. L. Krakatau No. 2, figure 3.

* No. 12. **Eugenia** spec. 1.

A leaf-gall caused by a psyllida.

This gall is new to me. On the undersurface of the leaf are developed shallow small oval depressions. On the uppersurface of the leaf there exists only a dark green coloration. The gall depressions are situated between the offshoots of the main-nerve lying more or less in a row. The nymph of the psyllid fits snugly in the depression, average diameter about $1^1/_2$ mM.

Sebesy-island, hill-top, about 700 M. April 25th 1921. No. 5255.

Fig. 5. A psyllid gall on Eugenia spec. × $^1/_1$

* No. 13. **Eugenia** spec. 2.

A leaf-gall caused by a psyllida.

Same gall-form as the foregoing, but bigger. Average diameter 2 mM.

On the uppersurface is a yellow-coloured bubble. The galls are chiefly situated naar the base of the leaf. See subjoined figure 5.

Sebesy-Island, hill-forest, about 300 M. April 25th 1921. No. 5316.

Fig. 6. A psyllid-gall on Eugenia spec. × 1.

* No. 14. **Eugenia** spec. 3.

A leaf-gall caused by a psyllida.

Same gall as the foregoing, but still bigger, average diameter about 3 mM. The excrescences on the upperside of the leaf-blade are semi-ballshaped and yellowish-green. See figure 6.

Sebesy-island, hilltop-forest, about 700 M. April 25th 1921. No. 5284.

No. 15. **Evodia** spec.

A leaf-gall caused by an acarid.

On the undersurface of the leaf are developed thick velvety hair-growths which may cover the whole surface of the leaf. They are mostly smaller and irregular; also on the leaf-stalks and young twigs they may be developed.

Sebesy-island, hill-forest, about 300 M, April 25th 1921. No. 5319.

No. 16. **Ficus ampelas** BURM.

A leaf-gall caused by a psyllida.

A very common gall in Java and Sumatra. On the uppersurface of the leaf yellow semi-ballshaped excrescences, on the undersurface conical outgrowths, with an opening in the top of the gall.

Sebesy-island, secondary forest, April 24th 1921. No. 5230.

Literature: 1) D. v. L. Java I. No. 6.
2) D. v. L. Sumatra, No. 11. figure 11.

No. 17. **Ficus ampelas** BURM.

A leaf-gall caused by a gall-mite: *Eriophyes raucus* NAL.

Tiny excrescences of the leafblade, average size about 1 mM. On the uppersurface tiny rounded swellings, on the undersurface more conical with an aperture in the top, which is covered with white hairlets. Common in Java.

Karakatau-island, young forest, January 19th 1922. N. 5968, and alt. about 300 M. January 20th 1922. N. 6013.

Sebesy-island, Cocos-jungle. April 22nd 1921. No. 5126. Secondary forest, April 24th 1921. No. 5234.

Literature: D. v. L. III. No. 107.

* No. 18. **Ficus callosa** WLLD.

A leaf-gall caused by a thrips: *Gigantothrips elegans* ZIMM.

No true gall, only yellow spots on the surface of the leaf slightly incurvated and wrinkled. Also known from Java, but not yet described.

Besides the above named thrips also *Gynaikothrips gracilis* KARNY was found on the leaves.

Sebesy-island, Cocos-jungle, April 22nd 1921. No. 5095.

No. 19. **Ficus fistulosa** REINW.

A leaf-gall caused by a gall-mite.

Already described from Krakatau. Granular accumulations on the undersurface of the leaf. The galls of Krakatau are very small (average size of the irregular excrescences 1—2 mM.), those of Sebesy are much bigger (average size about 12 mM).

Krakatau-Island, about 800 M. April 26th 1919, No. 3690; alt 100 M. January 20th. 1922. N. 6008.

Sebesy-island, secondary forest, April 23th 1921. No. 5132.

Literature: D. v. L. Krakatau. No. 3. figure 4.

Fig. 7. A midge-gall on Ficus fistulosa REINW. × 1.

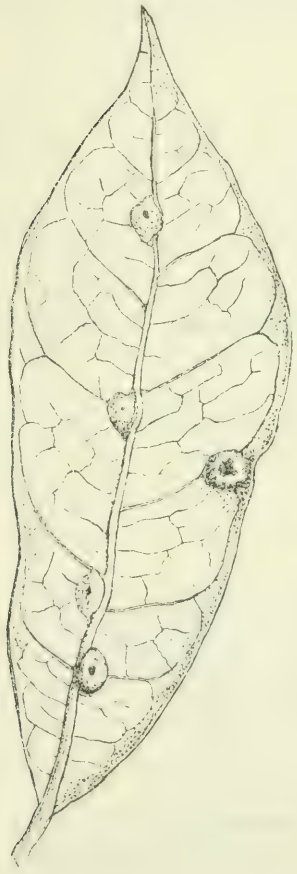


Fig. 8. A midge-gall on Ficus gibbosa BL. × 1.

* No. 20. **Ficus fistulosa** REINW.

A leaf-gall caused by a gall-midge.

On the bark of the twigs are developed irregular corky outgrowths which consist of a great number of small galls. Each gall has a larval chamber tenanted by a small gall-midge larva. See accompanying figure 7.

Average size 20—50 mM; depth of the gall layer about 3 mM.

Sebesy-island, forest, about 200 M, April 25th 1921. No. 5268.

* No. 21. **Ficus gibbosa** BL.

A leaf-gall caused by a gall-midge (prob).

The galls are developed on both sides of the leaf-blade. On the uppersurface they are flat, semi-ballshaped excrescences of a dark-green colour, on the undersurface they are more irregular, also semi-ballshaped, or more or less conical. See figure 8. The galls having been abandoned by their inhabitants, I am tot quite sure about the group to which they belong. Average size about $2^1/_4$ mM.

Verlaten-island, April 23th 1920, in the hills about 100 M, No. 4088; idem April 26th, No. 4165.

No. 22. **Ficus hispida** L.

A leaf-gall caused by a gall-mite.

The same kind of gall as described on *Ficus fistulosa* REINW. See No. 19. On the uppersurface there are flat concavities, of a pale-yellow-green colour, on the opposite place of the leaf irregular and granular accumulations. Average size 2—10 mM.

I have found this gall in Sumatra (erroneously described from *Ficus hirta* VAHL) and Malacca (Singapore, Kuala Lumpur, Penang). In Sumatra near Padang, Benkulen, and on the border of the Sunda-strait. On Sebesy the gall is fairly common and well developed, on Krakatau very rare; and in Java I have never met with it on this very common plant. Probably this gall-mite has been introduced to the islands from Sumatra.

Verlaten-island, April 26th 1920, in the hills about 100 M. No. 4160.

Sebesy-island, April 22nd 1921, Cocos-jungle, No. 5121 and secundary forest April 23th 1921, No. 5166.

Literature: D. v. L. Sumatra, No. 13.

No. 23. **Ficus pubinervis** BL.

A leaf-gall caused by a gall-midge.

The main-nerve is swollen into a fusiform gall which is more developed on the undersurface than on the uppersurface of the leaf. The leafblade itself is often atrophied and folded, especially when the whole nerve is developed into a gall. They are 10—20 mM. long and 3 – 5 mM. thick. Inside there are a good many ball-shaped larval chambers lying in a row.

Island of Krakatau, alt. 700 M. January 22nd. 1922. No. 6071.

Literature: D. v. L. Java VIII. No. 576.

* No. 24. **Ficus pubinervis** BL.

A leaf-gall caused by a gall-mite.

Granular accumulations on the undersurface of the leaf, the same kind of gall described on *Ficus fistulosa* REINW. (See No. 19).

Island of Krakatau, about 700 M. January 22nd 1922. No. 6070.

No. 25. **Ficus ribes** REINW.

A bark-gall probably caused by a gall-midge.

Already described in our first paper on Krakatau-galls.

Krakatau, April 26th 1919, young forest in the hills, about 300 M. No. 3648.

Literature: D. v. L. Krakatau, No. 4 figure 5.

No. 26. **Fiscus subulata** BL.

An aerial-root-gall caused by a gall-midge.

The tops of the aerial-roots are swollen into ballshaped or more or less fusiform galls, about 4 mM. across. The surface is red-brown. Inside there is a tiny larval chamber.

Island of Krakatau, about 700 M. January 22nd 1922. No. 6059.

Literature: D. v. L. Java III. No. 111.

No. 27. **Fiscus variegata** REINW.

A leaf-gall caused by a psyllida.

A very common gall in Java and already described. Almost ball-shaped on the uppersurface of the leaf and of a yellow or lightgreen colour. On the undersurface only a slight thickening.

Sebesy, Cocos-jungle, April 22nd 1921. N. 5102.

Literature: D. v. L. Java. III. No. 112 (erroneously designated as a gall-midge gall).

No. 28. **Fluggea virosa** BAILL.

A leaf-gall caused by a gall-mite.

Tiny nodules on the undersurface (or uppersurface) of the leaves, mostly situated near the margin, on the opposite surface a small opening giving entrance to the gall-cavity. Average size $^3/_4$ mM. Common in Java.

Sebesy, near a native-village. April 23th 1921. No. 5129.

Literature: D. v. L. Java II. No. 43.

* No. 29. **Glochidion philippicum** ROB.

A leaf-gall caused by a gall-midge.

Only developed on the undersurface of the leaf. They are tiny oval or grain-like swellings of the mid-rib of a dark green or brown colour. Inside there exists a small larval chamber. See accompanying figure. Average size 1 mM. broad, $1^1/_2$ mM. long. Already found by me in Java but not yet described.

Sebesy, April 23th 1921, secondary forest No. 5152a.

* No. 30. **Glochidion philippicum** ROB.

A leafgall caused by a gall-mite.

Only on the undersurface of the leaf there are developed mostly circular granular patches, which have a white colour. Average size 3—5 mM.

Sebesy, April 22nd 1921. No. 5075; idem April 23th 1921, secundary forest, N. 5152; idem April 24th 1921. N. 5220.

* No. 31. **Glochidion philippicum** ROB.

A leaf-gall caused by a gall-mite.

This is almost the same gall as previously described on *Gl. rubrum* BL. from Java, and caused by *Phytoptochetus tristichus* NAL. Irregular

Fig. 9. A mite-gall on Glochidion philippicum ROB. × 1.

nodules on the uppersurface of the leaf, on the undersurface only a tiny excrescence with an aperture on the summit. See figure 9.

Sebesy, Cocos-jungle, April 22nd 1921. No. 5087, idem January 25th 1922. N. 6136.

Literature: D. v. L. VI. No. 287.

No. 32. **Glochidion philippicum** ROB.

A leaf-gall caused by a moth.

These galls are situated on the undersurface of the leaves, being mostly directed in the longitudinal axis of the offsprings of the main-nerve. The gall is bean-shaped fastened to the leaf-blade by the concave side. On the transverse section they are circular, the longitudinal section showing oval. The uppersurface shows only a little oval depression. Internally it contains a long narrow larval cavity in the longitudinal axis of the gall.

A similar gall has been described on *Glochidion molle* BL.

Sebesy, January 25th 1922. No. 6137.

Literature: D. v. L. Java II. No. 50.

* No. 33. **Hernandia peltata** MEISSN.

A leaf-stalk gall caused by a coccid.

On the leaf-stalk are developed semilens shaped excrescences. In the top of it exists a concavity tenanted by a yellow scale-larva. Average size 1 mM. broad 2 mM. long. See accompanying figure 10.

Sebesy, on the beach, April 23th 1921. No. 5131.

Fig. 10. A coccid-gall on Hernandia peltata MEISSN. × 1.

No. 34. **Hibiscus tiliaceus** L.

A leaf-gall caused by a gall-mite: *Eriophyes hibiscitilius* NAL.

A very common gall and often described, also from Krakatau.

Krakatau, April 24th 1919. No. 3505.
Verlaten-island, April 27th 1919. No. 3723b. April 26th 1921. No. 5331.
Sebesy, April 23th. 1921. No. 5130.

Literature: D. v. L. Krakatau. No. 5, Figure 6 and 7.

* No. 35. **Hibiscus tiliaceus** L.

A leaf-gall caused by a gall-mite.

On the undersurface of the gall are developed irregular white hairgrowths. These erinea may cover the whole surface of the leaf-blade. On the uppersurface there exists only a darker coloration.

This gall is the same as previously described on *Hibiscus similis* BL.
Krakatau-island, on the beach. January 19th 1922. No. 5971.

Literature: D. v. L. Java IV. No. 176.

No. 36. **Hibiscus tiliaceus** L.

A leaf-gall caused by a coccid

The leaves are wrinkled and dark green, the leaf-stalk remaining mostly very short so that bunches of galled leaves are formed. See figure 11. Probably identical with the coccid gall on the buds of the same plant, already described from Celebes.

Verlaten-island, April 27th 1920. No. 4180.

Literature: D. v. L. Celebes No. 34, figure 34.

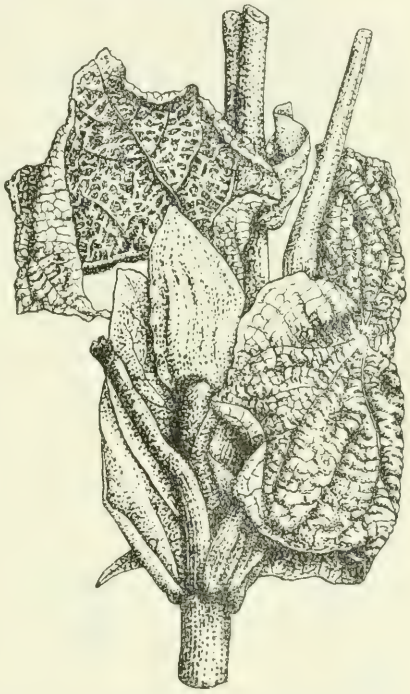


Fig. 11. A coccid-gall on Hibiscus tiliaceus L. × 1.

No. 37. **Homalanthus populneus** GRAH.

A leaf-gall caused by a psyllida.

Already described in my former paper on Krakatau galls.

Krakatau, in the hills about 300 M. April 26th 1919. No. 3647.

Literature: D. v. L. Krakatau No. 6, figure 8.

* No. 38. **Ipomoea denticulata** R. BR.

A leaf-gall caused by an aphid.

The attacked leaves are curved and wrinkled and smaller than the normal ones. Often accumulated in bunches.

Verlaten-island, April 24th 1920. No. 4119.

No. 39. **Litsea Noronhae** BL.

A leaf-gall caused by a gall-mite.

On the uppersurface of the leaves are developed big flat vesicles of a dark-green colour. On the opposite surface the concavity is covered by a dense white or reddish erineum. This consists of long multicellular but unbranched hairlets growing criss cross. Already known and described from Java.

Sebesy, forest of the hill-top about 700 M. April 25th. 1921. No. 5282.

Literature: D. v. L. VIII. No. 617.

No. 40. **Macaranga Tanarius** L.

A leaf-gall caused by a gall-mite: *Eriophyes macarangae* NAL.

A common gall in these countries and described from Krakatau. In my former publication the name of the gall-former was given as *Eriophyes dactilonyx* NAL. NALEPA who has studied newly sent material found this mite to be an inquiline, *E. macarangae* being the true gall-former. This will be published in a paper by Professor NALEPA, Eriophyidus aus Java, IIIter Beitrag, which is to be printed in the periodical Treubia, Volume II.

Krakatau, April 24th 1919, No. 3508 and No. 3597.

Verlaten-island, October 6th 1919. No. 3833; idem casuary-forest, April 25th 1920 No. 4138; idem, grass-jungles in the hills about 150 M, April 26th No. 4162.

Sebesy, April 22nd. No. 5155, idem April 24th 1921, No. 5239.

Literature: D. v. L. Krakatau, No. 7, figure 9.

No. 41. **Macaranga Tanarius** L.

A leaf-gall caused by a gall-mite.

On the uppersurface of the leaf are developed cylindric or conical excrescences which are slightly pubescent. They are easily recognizable by their yellow colour. On the reverse exists a wide aperture giving entrance to the vesicle. The wall thereof is covered with a very thin erineum. Common in Java.

Krakatau, about 100 M. January 20th 1922. No. 6007.

Sebesy, border of the forest, April 24th 1921, No. 5231.

Literature: D. v. L. VIII. No. 450.

No. 42. **Mallotus ricinoides** M. ARG.

A leaf-gall caused by a gall-midge.

The same gall occurs also in Java and has been erroneously described under the name *Mallotus resinosa* MUELL. ARG. On the undersurface of the leaf are developed almost ball-shaped excrescences. The surface

of the gall is densely covered with white hairs, giving it an almost velvetlike appearance. Inside there is a small larval chamber, which is in open communication with the air by a short but wide canal. The wall of this canal is covered with long white hairs. On the uppersurface of the leaf only a slight swelling of a dark green colour betrays the presence of the gall. See accompanying figure 12.

Sebesy, in a grass-jungle, April 29th 1921, No. 5432.

Literature: D. v. L. VII. N. 460 figure 213.

Fig. 12, A midge-gall on Mallotus ricinoides M. ARG. ×1.

No. 43. **Mangifera indica** L.

A leaf-gall caused by a gall-midge.

The leaves are strewn with tiny excrescences developed partly on the upper-, partly on the undersurface of the leaf, about $^3/_4$ mM. high and 1 mM. broad. On the uppersurface of the leaf the gall is cylindrical or more or less truncated conical. On the undersurface the gall is rounded or conical. Inside there is a very small larval chamber. A common gall in these countries.

Sebesy, January 26th. 1922. No. 6161.

Literature: D. v. L. Java II. No. 66.

No. 44. **Mangifera indica** L.

A leaf-gall caused by a gall-midge.

A tiny excrescence only developed on the uppersurface of the leaf. They are cylindrical outgrowths, about 1 mM. high, $^3/_4$ mM. across. The surface is glossy and dark brown. Inside there is a tiny larval cavity.

Sebesy, Native village, January 26th. 1922. No. 6164.

Literature: D. v. L. Java VIII. No. 462. fig. 214.

No. 45. **Melostoma malabathricum** L.

A leaf-gall formed by a gall-mite.

Described from Krakatau, a rolling of the margin of the leaf.

Krakatau, April 24th 1919. No. 3600.

Verlaten-island, April 22nd 1920. No. 4051.

Literature: D. v. L. Krakatau, No. 8, figure 10.

No. 46. **Melochia umbellata** STAPF.

A leaf-gall caused by a gall-mite: *Phytoptochetus orthiaspis* NAL.

Also known from Java. Small white patches of a granular appearance on the undersurface of the leaf. The erineum consists of clubshaped hairlets. The gall-former has been described by NALEPA, in a paper which is to be printed in the periodical Treubia, Volume II.

Verlaten-island, April 23th 1920. No. 4072.

Sebesy, January 26th 1922. No. 6158.

Literature: D. v. L. VIII. No. 630, figure 630.

No. 47. **Mikania scandens** WILLD.

A leaf-gall caused by a gall-mite: *Eriophyes mikaniae* NAL.

Tiny excrescences mostly attached to the undersurface of the leaf. They are irregular conical excrescences slightly contracted at their base. On the reverse there is only a small opening giving entrance to the larval chamber. Common in Java.

Krakatau, alt. 300 M. January 20th 1922. No. 6015.

Verlaten-island, April 24th 1920. No. 4112.

Literature: D. v. L. III, No. 127.

No. 48. **Nauclea purpurascens** KORTH.

A leaf-gall caused by a gall-midge.

Described from Krakatau. Excrescences of the mid-rib and stronger off-shoots covered with a corky layer.

Krakatau, April 25th 1919, No. 3599.

Literature: D. v. L. Krakatau, No. 9, figure 11.

No. 49. **Nauclea purpurascens** KORTH.

A leaf-gall caused by a gall-midge.

Described from Krakatau. Swellings of the mid-rib and the stronger off-shoots of the leaf.

Krakatau, about 500 M. April 26th 1919, No. 3663; idem alt. 300 M. January 22nd 1922. No. 6067.

Literature: D. v. L. Krakatau. No. 10. fig. 12.

No. 50. **Nauclea purpurascens** KORTH.

A leaf-gall caused by a gall-mite.

Described from Krakatau. Flat irregular vesicles on the uppersurface of the leaf.

Krakatau, April 25th 1919. No. 3621.

Literature: D. v. L. Krakatau, No. 11. figure 13.

No. 51. **Nephrolepis biserrata** SCHOTT.

A leaf-gall formed by a gall-mite: *Eriophyes pauropus* NAL.

Common all over the tropics and already described from Krakatau.

Recently appeared a publication on these galls on different varieties of *Nephrolepis.*

Krakatau, April 24th 1919. No. 3573; idem April 25th No. 3598.

Verlaten-island, April 28th 1919. No. 3741.

Sebesy, April 23th 1921. No. 5171; April 27th. 1921. No. 5340.

Literature: D. v. L. Krakatau No. 12.
D. v. L. Ueber die vom Eriophyes pauropus NAL. an verschiedenen Arten von Nephrolepis gebildeten Gallen. Annales du Jardin botanique de Buitenzorg. Vol. XXXI. 1920. p. 83. Tafel XIV.

No. 52. **Nephrolepis hirsutula** PR.

A leaf-gall caused by a gall-mite: *Eriophyes pauropus* NAL.

Same gall as the foregoing.

Lang-island, September 29th 1896, BOERLAGE coll.

Krakatau, about 800 M. April 26th 1919. No. 3694; idem beach, October 6th 1919. No. 3823; idem January 24th 1922. No. 6133.

Verlaten-island, April 22th 1920, No. 4047.

Sebesy, Cocos-jungle April 22th 1921, No. 5103.

Literature: D. v. L. Krakatau, No. 13.

No. 53. **Oplismenus compositus** BEAUV.

A gall of the shoots caused by an aphid.

Described from Java. The internodia remain short and the leaves small so as to form a bunch, wherein the plant-lice live.

Verlaten-island, in a ravine, about 150 M, April 26th 1920. No. 4161.

Literature: D. v. L. Java II, No. 73, figure 40.

* No. 54. **Paederia tomentosa** BL.

A leaf-gall caused by a gall-mite: *Eriophyes paederiae* NAL.

Common in Java on *P. foetida;* small conical excrescenses mostly on the undersurface of the leaf. Average size $^3/_4$ mM.

Sebesy, Cocos-jungle. April 25th 1921. No. 5247.

Literature: D. v. L. Java II, No. 74, figure 41.

No. 55. **Paederia tomentosa** BL.

A leaf-gall formed by a gall-gnat: *Clinodiplosis paederiae* KIEFF.

Common on Java on *Paederiae foetida* L. Both parts of the leaf are rolled upwards and covered with long white hairs. The wall of the roll is thick and hard.

Sebesy, in the forest about 400 M. April 25th 1921. No. 5325.

Literature: D. v. L. Java I, No. 17, figure 12.

Fig. 13. A midge-gall on Pericampylus incanus MIERS. × 1.

No. 56. **Pericampylus incanus** MIERS.

A leaf-gall caused by a gall-midge.

The galls are developed on both sides of the leaf-blade. On the uppersurface they are semi-ballshaped, contracted at their base and with a diameter of $1-1^1/_2$ mM. See figure 13. The surface is covered with a layer of short white hairlets. On the underside is developed a conical or rounded swelling densely covered with hairs and about 1 mM. in diameter. Also known from Java.

Sebesy, secondary forest, April 24ht 1921. No. 5233.

Literature: D. v. L. Java V. No. 237.

No. 57. **Piper Betle** L.

A leaf-gall caused by a thrips: *Gynaikothrips chavicae* (ZIMM.).

Rollings of both sides of the leafblade with an irregular and light green surface. Also found in Java. See figure 14.

Sebesy, young forest, April 23th. 1921. No. 5128.

Literature: D. v. L. Java VII. No. 474.

H. KARNY und W. und J. DOCTERS VAN LEEUWEN-REYNVAAN, Zweite Mitteilung über die javanischen Thysanopterocecidien und deren Bewohner. Zeitschr. f. Wiss. Insektenbiologie, Bd. X. 1914. p. 202.

No. 58. **Piper Betle** L.

A leaf-gall caused by a thrips: *Gynaikothrips chavicae* (ZIMM.).

Fig. 14. A thrips gall on Piper Betle L. × 1.

The leaf along the mid-rib is swollen and folded so as to form a long canal. The colour of this curious gall is dark green. Very common in Java on cultivated plants.

Sebesy, native village, April 25th 1921. No. 5329.

Literature: D. v. L. Java II. No. 77. fig. 44.

No. 59. **Piper retrofractum** VAHL.

A leaf-gall formed by a thrips: *Gynaikothrips chavicae* (ZIMM.).

Common in Java. Twisting and rolling of both sides of the leaf-blade. See figure 15.

Sebesy, Cocos-jungle, April 22th 1921. No. 5127. Idem, forest, about 100 M, April 28th 1921. No. 5397.

Literature: D. v. L. Java III. No. 133.

Fig. 15. A thrips gall on Piper retrofractum VAHL. × 1.

No. 60. **Piper sarmentosum** BL.

A leaf-gall formed by a thrips: *Gynaikothrips pallipes* KARNY.

Almost the same gall as the foregoing, but rolling only slightly and accompanied with yellow colouring.

When older they are covered with white outgrowths which have been described by me from Java. In the galls occurred also *Gynaikothrips chavicae* (ZIMM.).

Sebesy, Cocos-jungle, April 22th No. 5085.

Literature: D. v. L. Java VII. No. 478.
D. v. L. Ueber die von Gynaikothrips pallipes KARNY on Piper sarmentosum BL. verursachten Blattgallen. Marcellia. Vol. XIII. 1914. p. 127.

No. 61. **Pipturus incanus** MIERS.

A leaf-gall caused bij a gall-mite.

Common in Krakatau and already described of this island. Small white excrescences of the leaf-blade.

Krakatau, Th. VALETON coll. March 1st 1905; C. A. BACKER coll. April 1906; by me April 24th 1919. No. 3542; January 24th 1922, No. 6122; January 25th 1922. No. 6132.

Verlaten-island, C. A. BACKER coll. April 1906; by me April 27th 1919. No. 3924 b; idem April 22nd 1920. No. 4051.

Sebesy, Cocos-jungle, April 22nd 1921. No. 5086; idem April 28th 1922. No. 5381.

Literature: D. v. L. Krakatau No. 14. figure 14.

No. 62. **Pithecolobium umbellatum** BTH.

A leaf-gall caused by a gall-mite.

Already known from Krakatau. Small vesicles on the uppersurface of the leaf.

Krakatau, April 24th 1919. No. 3510; idem April 27th 1919. No. 3722a.

Verlaten-island, April 23th 1920. No. 4083.

Literature: D. v. L. Krakatau, No. 15. figure 15.

No. 63. **Pithecolobium umbellatum** BTH.

A leaf-gall caused by a gall-mite.

Already described from Krakatau; discoid swellings bulging on both sides of the leaf.

Krakatau, April 24th 1919. No. 3511.

Literature: D. v. L. Krakatau, No. 16. figure 16.

No. 64. **Pongamia pinnata** MERR.

A leaf-gall caused by a gall-mite.

On the upper, or on the undersurface of the leaf are developed cylindrical, mostly club-shaped outgrowths, 5—12 mM. long. The base is mostly narrow about $^3/_4$ mM. across; the end is swollen into an irregular club, 3—5 mM. across.

On the other side of the leaf-blade there is only a small orifice giving entrance to the gall-cavity, inside the wall of the gall is covered with long white hairlets.

Sebesy, beach, January 25th 1922. No. 6134.

Literature: D. v. L. Java V. No. 239. figure 97.

No. 65. **Premna integrifolia** L.

A leaf-gall caused by a gall-mite.

Already described from Krakatau. Cudgel-shaped excrescences on the uppersurface of the leaf.

Krakatau, April 24th 1919. No. 3509.

Verlaten- island, April 23th 1920. No. 4087; idem April 26th 1920. No. 4143.

Sebesy, April 23th 1921. No. 5200, idem April 24th 1921. No. 5238.

Literature: D. v. L. Krakatau No. 17. figure 17.

No. 66. **Premna integrifolia** L.

A leaf-gall formed by a gall-mite: *Eriophyes premnae* NAL.

Common in Java. Very small nodules on the upperside of the leafblade, about $^3/_4$ mM. in diameter. See figure 16. On the undersurface is only developed a tiny yellow spot with a narrow opening.

Krakatau, on the beach, January 19th 1922. No. 5969.

Sebesy, on the beach, April 23th 1921. No. 5198; idem January 25th 1922. No. 6138.

Literature: D. v. L. III. No. 137.

Fig. 16. A mite-gall on Premna integrifolia L. × 1.

No. 67. **Ruellia repens** BURM.

A leaf-gall caused by a gall-mite: *Eriophyes stereothrix* NAL.

Common in Java and Celebes. Small elongated often purple-coloured vesicles on the uppersurface of the leaf. On the reverse the wall is covered with a dense white erineum. This erineum consists of multicellular branched hairlets.

Sebesy, arable land, April 28th 1921. No. 5376.

Literature: 1) D. v. L. Java II. No. 81. figure 45.
2) D. v. L. Celebes. No. 54. figure 54.

No. 68. **Terminalia Catappa** L.

A leaf-gall caused by a gall-mite.

Already described from Krakatau. Small nodules on the uppersurface of the leaf.

Krakatau, April 24th 1919. No. 3505.

Literature: D. v. L. Krakatau. No. 18. fig. 18.

No. 69. **Terminalia Catappa** L.

A leaf-gall caused by a gall-gnat.

Described from Krakatau, tiny cylindrical outgrowths mostly situated near the margin of the leaf.

Krakatau, April 24th 1919. No. 3506.

Sebesy, January 25th 1922. No. 6139.

Literature: D. v. L. Krakatau, No. 19. figure 19.

No. 70. **Thespesia populnea** SOLAND.

A leaf-gall caused by a psyllida.

Described from Krakatau. Rollings of the leaf margins of a yellow colour.

Krakatau, January 19th 1922. No. 5972.

Verlaten-island, April 29th 1919, No. 3767, and April 23th 1920. No. 4086.

Sebesy, January 25th 1922. No. 6133, and January 26th 1922. No. 6169.

Literature: D. v. L. Krakatau. No. 20. figure 20.

No. 71. **Trichosanthes tricuspidata** LOUR.

A leaf-gall caused by a gall-gnat.

Described from Krakatau. The twigs on which this gall forms fusiform swellings were sterile and so it is not quite certain if they belong to the above mentioned plant or to *Coccinea cordifolia* COGN.

Krakatau, April 24th 1919. No. 3527.

Verlaten-island, April 28th 1919. No. 3756; idem April 25th 1920. No. 4122.

Sebesy, April 29th 1921. No. 5409.

Literature: D. v. L. Krakatau, No. 21. figure 21.

Fig. 17. An aphid-gall on Uncaria sclerophylla ROXB. × 1.

* No. 72. **Uncaria sclerophylla** ROXB. (prob).

A leaf-gall caused by an Aphida.

The leaves remain short and their surface is wrinkled and folded so as to from bunches. Mostly situated on the ends of the young twigs. See figure 17.

Verlaten-island in a ravine, about 100 M. April 26th 1920. No. 4147.

* No. 73. **Uncaria sclerophylla** ROXB. (prob).

A leaf-gall caused by a gall-mite.

On the uppersurface there are developed dark green yellow flat vesicles, about 3 mM. in diameter. On the reverse these vesicles are covered with a thick felt-like erineum.

Verlaten-island in a ravine, about 100 M. April 26th 1920. No. 4156.

No. 74. **Vernonia cinerea** LESS.

The leaf is galled by a Psyllida.

Described from Kratatau. Shrivelled leaves.

Krakatau, April 24th 1919. No. 3528.

Literature: D. v. L. Krakatau No. 22, fig. 22.

* No. 75. **Villebrunnea rubescens** BL.

A witches' broom formed by a gall-mite: *Eriophyes onychopus* NAL.

Very common in Java, but not yet described. The buds (often flower-) grow out into a real thick witches' broom, consisting of a great number of small branches, ending in small leaflets or in proliferated and rudimentary flowers. Often the whole gall has a reddish colour. They may become very great, up to 20 cM.

Krakatau alt. 150 M. January 20th 1922. No. 6010, and alt. 700 M. January 22nd 1922. No. 6065.

Sebesy, young forest, April 23th 1921. No. 5136, and forest in the hills, about 500 M. April 25th 1921. No. 5266.

* No. 76. **Villebrunnea rubescens** BL.

A leaf-gall caused by a gall-gnat.

This gall has not yet been described by me, but it resembles a gall found in Java and described. These galls are ball-shaped excrescences of the mid-rib and the strong off-shoots covered with long, white hairs, average size without hairs about 2 mM. With hairs more than 4 mM. See accompanying figure 18.

Sebesy, forest in the hills, about 400 M. April 25th 1921. No. 5321.

Literature: D. v. L. Java VIII. No. 687. figure 687.

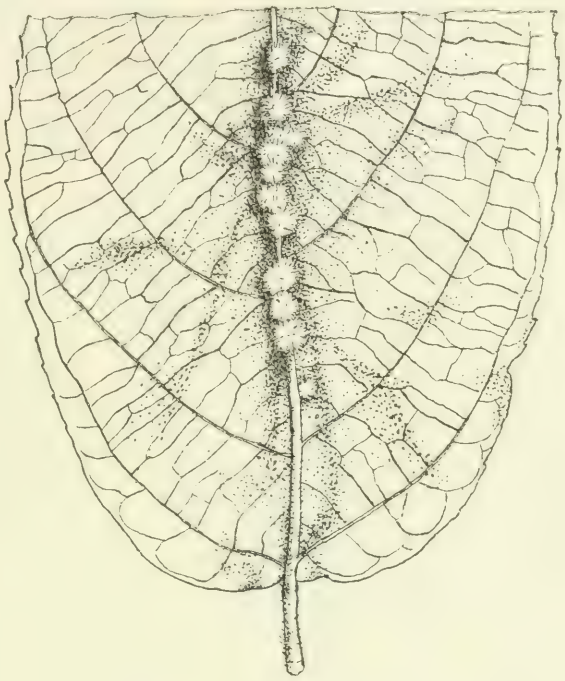


Fig. 18. A midge-gall on Villebrunnea rubescens Bl. × 1.

No. 77. **Vitex pubescens** VAHL.

A leaf-gall formed by a gall-mite: *Eriophyes cryptotrichus* NAL.

Common on Java and other tropical malayan countries. Small vesicles on the uppersurface of the leaf, with an erineum on the reverse.

Sebesy, young forest, April 23th 1921. No. 5179.

Literature: D. v. L. VI. No. 342. figure 153.

* No. 78. **Vitex Sebesiae** H. J. LAM.

A leaf-gall caused by a gall-mite.

This plant is new to science. The description exists in manuscript by Dr. H. J. LAM. Small mostly circular or oval patches of a granular appearance on the undersurface of the leaves. On the uppersurface is only developed a slight concavity.

Sebesy, April 28th 1921. No. 5355.

* No. 79. **Vitis trifolia** L.

A twig-gall caused by a gall-midge.

A new gall. It is a slight fusiform swelling of the young ends of the

Fig. 19. A midge-gall on Vitis trifolia L. × 1.

shoots. The internodes remain shorter and the leaves remain smaller and accumulated. See the figure 19.

Sebesy, in a marsh, April 24th 1921. No. 5207.

No. 80. **Wedelia biflora** D. C.

A leaf-gall formed by a gall-mite.

Common on the beach of tropical countries. Small excrescences among the ramifications of the veins; and already described from Krakatau.

Krakatau, April 24th 1919. No. 3543.

Verlaten-island, April 22nd 1920. No. 4029.

Sebesy, April 27th 1921. No. 5336.

Literature: D. v. L. Krakatau. No. 23. figure 23.

No. 81. **Wedelia biflora** D. C.

A leaf-gall caused by an aphid: *Aphis malvae* KOCH.

Common on tropical beaches, and already described from Krakatau. Bunches of poorly developed, shrivelled and curved leaves.

Verlaten-island, April 27th 1919. No. 3727b; idem October 6th 1919. No. 3832; idem April 24th 1920. No. 4113.

Sebesy, April 24th 1921. No. 5226.

* No. 82. **Wedelia biflora** D. C.

A bud-gall caused by a dipteron.

This gall is known to me from Java, but not yet described. The bunch in the axilla of the leaves develop into ball-shaped or fusiform swellings of a dark green colour. Inside there is a wide larval chamber tenanted by the white larva of a dipteron. The growing point may develop into a short young twig. See figure 20.

Verlaten-island, April 26th 1921. No. 5332.

Sebesy, April 24th 1921. No. 5229.

Fig. 20. A dipterocecidium on Wedelia biflora DC. × 1.

No.	Galls of Krakatau and Verlaten Eiland	Gall-former	Galls of Sebesy	Gall-former
1			Alstonia scholaris R. Br.	psyll.
2			Antidesma Bunius Spr.	cec.
3			Avicennia marina (Forsk.) Vierh.	„
4			Avicennia marina (Forsk.) Vierh.	„
5			Bridelia tomentosa Bl.	„
6			Calanthe Zollingeri Rchb. f.	„
7	Calophyllum Inophyllum L.	lep.		
8	Cassytha filiformis L.	?		
9	Clerodendron inerme Gaertn.	cec.		
10			Conocephalus suaveolens Bl.	thr.
11	Derris heterophylla Barke	„		
12			Eugenia spec.	psyll.
13			Eugenia spec.	„
14			Eugenia spec.	„
15			Evodia spec.	acar.
16			Ficus ampelas Burm.	psyll.
17	Ficus ampelas Burm.	acar.	„ „ „	acar.
18			„ callosa Wild.	thr.
19	Ficus fistulosa Reinw.	„	„ fistulosa Reinw.	acar.
20			„ fistulosa Reinw.	cec.
21	Ficus gibbosa Bl.	cec.		
22	„ hispida L.	acar.	„ hispida L.	acar.
23	„ pubinervis Bl.	cec.		
24	„ „ „	acar.		
25	„ ribes Reinw.	cec.		
26	„ subulata Bl.	„		
27			Ficus variegata Reinw.	psyll.
28			Flueggea virosa Baill.	acar.
29			Glochidion philippicum Rob.	cec.
30			„ „	acar.
31			„ „	„
32			„ „	lepid.
33			Hernandia peltata Meissn.	cocc.
34	Hibiscus tiliaceus L.	acar.	Hibiscus tiliaceus L.	acar.
35	„ „ „	„		
36	„ „ „	cocc.		
37	Homalanthus populneus Grah.	psyll.		
38	Ipomoea denticulata R. Br.	aph.		
39			Litsea Noronhae Bl.	acar.
40	Macaranga Tanarius L.	acar.	Macaranga Tanarius L.	„
41	„ „ „	„	„ „ „	„
42			Mallotus ricinoides M. Arg.	cec.
43			Mangifera indica L.	„
44			„ „ „	„
45	Melastoma malabathricum L.	acar.		
46	Melochia umbellata Stapf.	„	Melochia umbellata Stapf.	acar.
47	Mikania scandens Willd.	„		
48	Nauclea purpurascens Korth.	cec.		

No.	Galls of Krakatau and Verlaten Eiland	Gall-former	Galls of Sebesy	Gall-former
49	Nauclea purpurascens Korth.	cec.		
50	„ „ „	acar.		
51	Nephrolepis biserrata Schott.	„	Nephrolepis biserrata Schott.	acar.
52	„ hirsutula Pr.	„	„ hirsutula Pr.	„
53	Oplismenus compositus Beauv.	aph.		
54			Paederia tomentosa Bl.	„
55			„ „ „	cec.
56			Perycampylus incanus Miers.	„
57			Piper Bettle Bl.	thr.
58			„ „ „	„
59			„ retrofractum Vahl.	„
60			„ sarmentosum Bl.	„
61	Pipturus incanus Miers.	acar.	Pipturus incanus Miers.	acar.
62	Pithecolobium umbellatum Bth.	„		
63	„ „	„		
64			Pongamia pinnata Merr.	acar.
65	Premna integrifolia L.	„	Premna integrifolia L.	„
66	„ „ „	„	„ „ „	„
67			Ruellia repens Burm.	„
68	Terminalia Catappa L.	„		
69	„ „ „	cec.	Terminalia Catappa L.	cec.
70	Thespesia populnea Soland.	psyll.	Thespesia populnea Soland.	psyll.
71	Trichosanthes tricuspidata Lour.	cec.	Trichosanthes tricuspidata Lour.	cec.
72	Uncaria sclerophylla Roxb.	aph.		
73	„ „ „	acar.		
74	Vernonia cinerea Less.	psyll.		
75	Villebrunea rubescens Bl.	acar.	Villebrunea rubescens Bl.	acar.
76			„ „	cec.
77			Vitex pubescens Vahl.	acar.
78			„ Sebesiae H. J. Lam.	„
79			Vitis trifolia L.	cec.
80	Wedelia biflora D. C.	acar.	Wedelia biflora D. C.	acar.
81	„ „ „ „	aph.	„ „ „ „	aph.
82	„ „ „ „	dipt.	„ „ „ „	dipt.

ZUR IDENTITÄT DES XANTHOSTERINS MIT DEM LUPEOL.

von

A. J. ULTÉE.

Bei der Durchsicht einer Abhandlung von DIETERLE [1]: „Xanthosterin, ein kristallinischer Körper aus der Rinde von Xanthoxylum Budrunga D. C." fiel mir die Uebereinstimmung des darin beschriebenen Sterins mit Lupeol auf, das ich bei meinen Untersuchungen der Kautschuk-Harze wiederholt in Händen hatte.

Lupeol, das zuerst aus den Samenhäutchen von Lupinensamen dargestellt worden war [2]), wurde später bei mehreren Pflanzenfamilien aufgefunden, u. zw. bei den Sapotaceae [3]), den Linaceae [4]), den Apocynaceae [5]), den Compositae [6]) und den Moraceae [7]), und ist somit in der Natur augenscheinlich sehr verbreitet.

Für Lupeol fand COHEN [8]) den Schmelzpunkt von 211°, corr. 215°; für Xanthosterin gibt DIETERLE 213—214° an, für Lupeolbenzoat ermittelte COHEN als Schmelzpunkt 265—266°, corr. 273—274°, Xanthosterinbenzoat soll bei 264—265° schmelzen. Allerdings fand DIETERLE bei zwei Elementar-Analysen nur Kohlenstoffgehalte von 83,39 und 83,24 %, während Lupeol 84,4 % dieses Elements enthält, und ergeben auch die Derivate von Xanthosterin zu wenig im Vergleich mit den entsprechenden Lupeol-Verbindungen, doch haben mehrere Untersucher bei der Prüfung von Sterinen, die schwer vollkommen rein zu erhalten und äusserst schwierig zu analysieren sind, zu niedrige Resultate bekommen.

Es erschien mir daher wünschenswert, das sogenannte Xanthosterin darzustellen und mit Lupeol zu vergleichen.

In den Wäldern südlich von Djember (Ostjava) fand ich einige junge Exemplare von Xanthoxylum Budrunga, eines Baumes, der durch seinen stark bedornten Stamm und die gefiederten Blätter auffällt. Zur Sicherheit wandte ich mich noch an Herrn Dr. SMITH, den Direktor des Herbariums am botanischen Garten (Buitenzorg), der so freundlich war, mir mitzuteilen,

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[1]) Arch. Pharm. *257*, 260; (1919).
[2]) LIEBERMANN, Ber. Chem. Ges. *24*, 187; (1891).
[3]) VAN ROMBURGH, ibidem, *37*, 3440; (1904).
[4]) SACK & TOLLENS, ibidem, *37*, 4105; (1904).
[5]) COHEN, Arch. Pharm. *245*, 236; (1907).
[6]) COHEN, ibidem, *246*, 520; (1908).
[7]) ULTÉE, Chem. Weekblad, *9*, 773; (1912). Pharm. Weekblad *52*, 1097; (1915). Ber. Chem. Ges. *54*, 784; (1921).
[8]) Rec. Trav. Chim. Pays Bas, *28*, 368; (1909).

dass das von mir gesammelte Material tatsächlich von Xanthoxylum Budrunga stammte; dieser Baum heisst jedoch jetzt Fagara Rhetsa ROXB.

Aus 4,5 kg des lufttrockenen Bastes gewann ich umgefähr 10 g sogenanntes Xanthosterin nach der Vorschrift von DIETERLE, der aus 5 kg Bast 12 g dieses Körpers erhielt. Ein Vergleich mit Lupeol ergab tatsächlich dessen Identität mit Xanthosterin. Es ergab sich für Xanthosterin S = 216° corr., zusammen mit Lupeol (aus „Bresk"), das bei 215° corr. schmolz, wurde 215—216° abgelesen.

Die verschiedenen von DIETERLE für Xanthosterin angegebenen Farbenreaktionen gelten unter denselben Umständen genau ebenso für Lupeol. Es muss noch erwähnt werden, dass DIETERLE sein Xanthosterin nicht mit Lupeol verglich, wohl aber mit Alstol, das jedoch nach COHEN [1]) aus einem Lupeol-hältigen Gemenge besteht.

Mit Hilfe von Pyridin und Benzoylchlorid wurde das sogenannte Xanthosterin, in Benzol gelöst, benzoyliert. Das Reaktionsprodukt wurde mit verdünnter Schwefelsäure und verdünntem Alkohol extrahiert und einige Male aus Aceton umkristallisiert. Das so gewonnene Benzoat schmilzt bei 272° corr., zusammen mit Lupeolbenzoat, S = 272 corr., wurde derselbe Schmelzpunkt gefunden.

Durch Acetylieren des Xanthosterins mit Essigsäureanhydrid und essigsaurem Natrium entstand ein Acetat, S = 218 corr., identisch mit Lupeolacetat.

Ferner wurde noch von diesem sogenannten Xanthosterin das spezifische Drehungsvermögen bestimmt; bei 25° ergab sich: $[\alpha]_D = +27.8°$ ($c = 2.7512$, $l = 2$ dm, $\alpha_D = +1.53°$) während COHEN für Lupeol 27.2° angibt.

Es kann daher keinem Zweifel mehr unterliegen, dass Xanthosterin mit Lupeol identisch ist.

Erwähnen wir schliesslich noch, dass diese Untersuchung beinahe abgeschlossen war, als mir eine Publikation von GOODSON [2]) in die Hand kam, in der die Resultate einer Untersuchung am Bast von Xanthoxylum macrophyllum OLIVER mitgeteilt wurden. *In dieser Rutacee wurde ebenfalls Lupeol nachgewiesen.* GOODSON weist ferner auch darauf hin, dass die von DIETERLE angegebenen Schmelzpunkte von Xanthosterin und dessen Derivaten mit denen von Lupeol auffallend übereinstimmen.

Da nunmehr in zwei Xanthoxylum-Species Lupeol nachgewiesen ist, kann kein Zweifel mehr darüber bestehen, dass auch das „neue" Phytosterin, das durch OESTLING [3]) aus der Wurzel von Fagara xanthoxyloides LAM. (Xanthoxylum senegalense D. C.) isoliert wurde, mit Lupeol identisch ist. Dieser Untersucher gab für das sogenannte neue Sterin den Schmelzpunkt 214° an, für das Benzoat 265 - 267°, welche Zahlen auffallend mit denen für Lupeol übereinstimmen.

[1]) Arch. Pharm. *245*, 236; (1907).
[2]) Biochemical Journal *15*, 123; (1921).
[3]) Ref. Chem. Zentr. Bl. *85*, Band II, 941; (1914).

TWO NEW MALAYAN FERN GENERA.

by

Capt. C. R. W. K. van Alderwerelt van Rosenburgh.

With plates 14 and 15.

PARASORUS v. A. v. R.

Sori longe lineares, submarginales, apices venarum venularumque conjungentes; indusium *Schizolomae* more intramarginale, exterius liberum.

Rhizoma repens, squamosum. Frondes cum rhizomate articulatae.

The single species, up till now found, has the mode of growth and the aspect of a simple-leafed *Davallia* of the *Scyphularia* group, with which it is undoubtedly related.

Parasorus undulatus v. A. v. R.

Rhizoma repens, potius scandens, usque 2 m. longum vel longius, copiose ramosum, ramis teretibus, funiformibus, 2 mm. crassis, in sicco brunneis et longitudinaliter rugulosis, leviter cretaceis; squamae atrae vel atro-brunneae, parte basali rotundae vel oblongae, peltatae, appressae, decidue pallideque scarioso-marginatae, parte apicali abrupte contractae, longe filivel piliformes, horizontaliter recurvatae, integerrimae. Stipites remoti, 2—4 cm. longi, subsemiteretes, in sicco supra sulcati, parce decidueque squamulosi, dimidia parte superiore angustissime cuneato-alati. Frondes coriareae, proportione crassae, glabrae, plerumque transverse undulatae, lineares, rectae vel falcatae, 10—18 cm. longae, 1—2 cm. latae, basi truncato-cuneatae vel rotundatae, in alam stipitis abrupte transientes, apice sensim angustatae, obtusiusculae ad acutae, margine sterili obsolete crenulato, fertili integerrimo; costa supra prominens, subtus depressa; basin versus parce decidueque squamulosa; venae copiosae, subhorizontales, furcatae, superiores simplices, in partibus sterilibus frondium liberae. Sori plantae adultae continui, plantae juvenilis interrupti, partes basales angustatas et apicales frondium non occupantes; indusium coriaceum, angustum, margine marginem frondis attingente.

Squamules of stipe and costa like those of the rhizome but smaller.

Ternate Island: Foramadiahi, in forest, alt. 600 m. (V. M. A. Beguin No. 1321, 14 January 1921).

GRAMMATOPTERIS, V. A. V. R.

Sori longi, lineares, 1 utrinque, costae paralleli, parenchymate costali dorsali producto (incrassato et dilatato) separati. Indusium nullum.

Rhizoma repens vel scandens. Frondes cum rhizomate articulatae, dimorphae, simplices, integrae, fertiles valde contractae; venae primariae adsunt, ceterae anastomosantes.

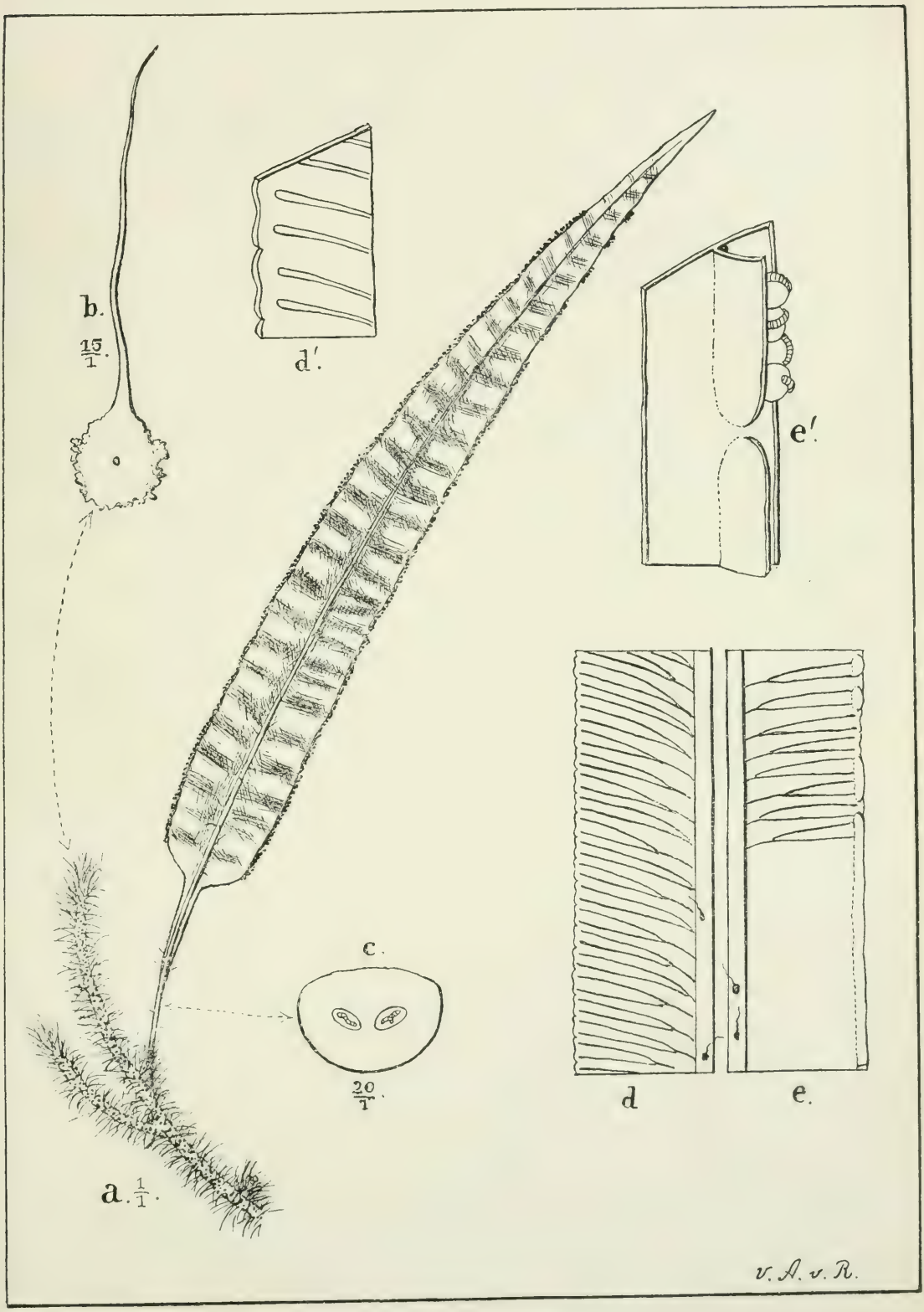
Grammatopteris Brooksii, V. A. V. R. — *Drymoglossum Brooksii*, V. A. V. R., in Bull. Btz. XXVIII (1918), 21.

Forma typica; this bulletin, tab. 15, fig. 1 *a* — *b*. The description of this has been taken from a small, probably young, though nearly fructiferous plant having the stipes provided with a single central, T-shaped vascular bundle, the barren fronds with the margin narrowly recurved, somewhat cartilagineous, with the costa flattened above, prominent beneath, with 12 — 15 prominent main veins on a side, united by transversal veins so as to form ± 5 rows of subquadrangular primary areolae on each side of the costa, divided into many irregular smaller areolae with included free veinlets, and the very young fertile frond with the sori deeply immersed in submarginal grooves, separated by the thickened and much dilated costal parenchyma, as in Scleroglossum (when examined in a saturated chloral-hydrate solution). — Sumatra.

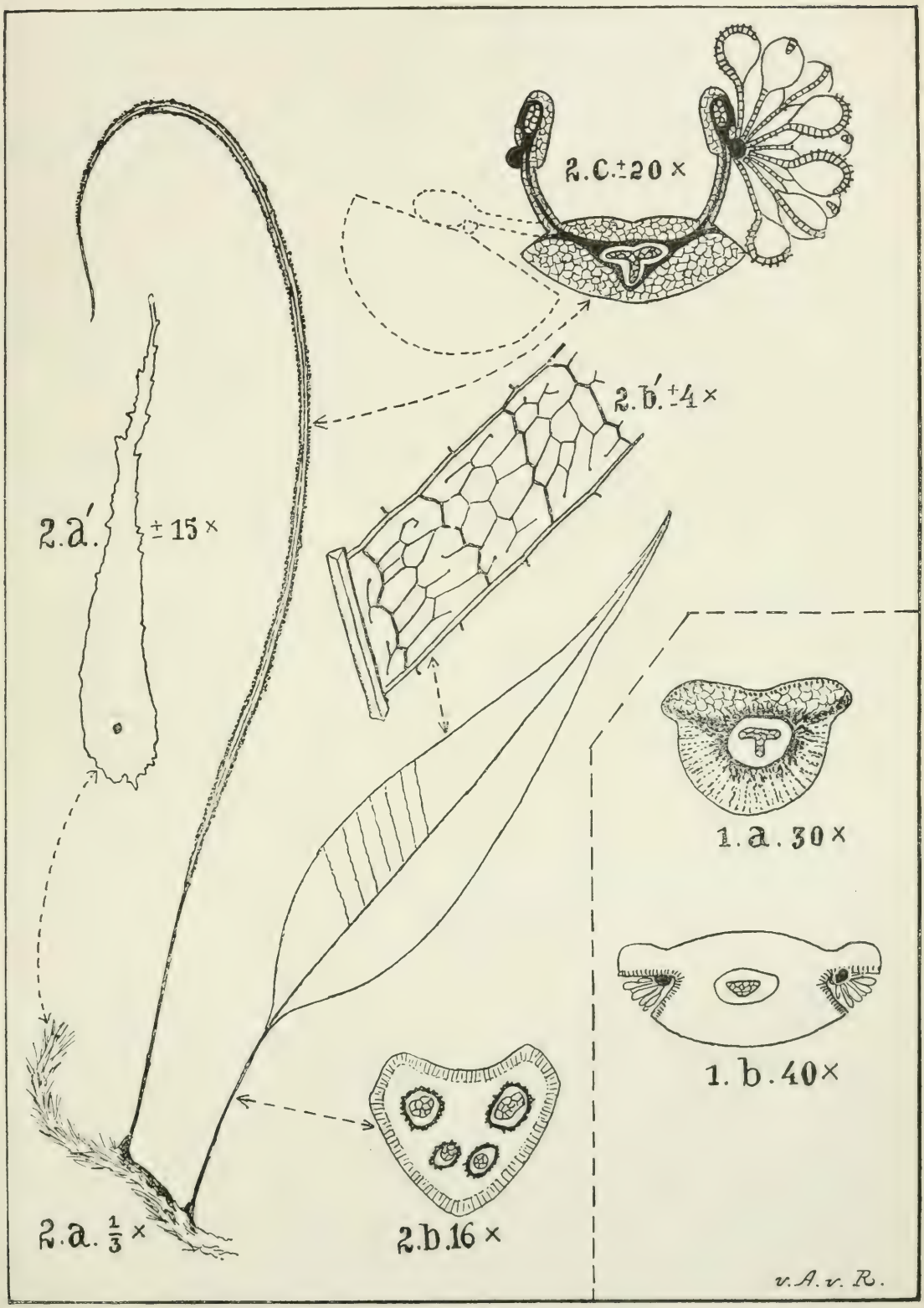
Var. **Beguinii;** this bulletin, tab. 15, fig. 2 *a* — *c*: Quam forma typica major. Rhizoma usque ad ± 4 m. alte scandens, lignosum, squamis rufis. Stipites usque ± 10 cm. longi, fasciculis vasorum 4, subteretibus muniti. Frondes steriles subrigidae, lanceolato-ovatae vel -oblongae, 27½—30 cm. longae, 7—8 cm. latae, infra medium latissimae, basi rotundato-cuneatae, minus abrupte subdecurrentibus, margine non vel vix repandae, leviter distinctius cartilagineo-incrassatae, apice longiuscule acuminatae; venae primariae 30 — 35 utrinque; areolae primariae utrinque ± 7-seriatae. Frondes fertiles ± 45 cm. longae, ± 3—4 mm. latae, margine in sicco valde incurvatae. Sori partem marginalem incrassatam contingentes, parenchymate costali producto (incrassato et valde dilatato) separati sed non in sulcis immerci. — Ternate: Foramadiahi, in forest, alt. ± 650 m. (V. M. A. BEGUIN No. 1095, 12 November 1920).

Grammatopteris pseudodrymoglossum, V. A. V. R.

Rhizoma repens, in juventute dense squamosum, postremo glabrescens, decidue cretaceum, in sicco nigrum; squamae lanceolato-subulatae, in juventute ferrugineae, postremo nigro-brunneae. Stipites remoti, 1 - 6 cm. longi, frondium sterilium breviores, frondium fertilium longiores, fasciculis vasorum 4, filiformibus muniti, in juventute postice glandulis minutissimis, oblongis, resinosis, nigro-brunneis, caducis muniti, ceterum glabri. Frondes steriles subrigide coriaceae, supra glabrae, subtus in juventute stipitis more resinoso-



Parasorus undulatus v. A. v. R.



Grammatopteris Brooksii v. A. v. R.

Fig. 1 (a-b). Forma typica. Transversal sections of stipe and very young fertile frond.

glandulosae, mox glabrae, lineari-oblongae, $2^1/_2 - 7^1/_2$ cm. longae, $^1/_2$ - 2 cm. latae, apice obtusae vel rotundatae, margine incrassatae revolutaeque, basi cuneatae; costa subtus valde prominens; venae primariae distinctae; areolae absconditae. Frondes fertiles lineares, 4—6 cm. longae, $\pm$ 2 mm. latae, apice rotundatae, basi acutissime lineari-cuneatae, ceterum antice in sicco plus minusve complicato-conduplicatae. Sori longi, mediani, continui vel parce interrupti.

This and *Pleopeltis costulata* V. A. V. R. form the connecting links between *Grammatopteris* and *Pleopeltis* § *Pleuridium.*

New Guinea: near Prauwen Bivak, epiphytical in forest, alt. 210 m. (H. J. LAM No. 826, 19 August 1920).

NEW OR NOTEWORTHY MALAYAN ARACEAE 3

by

Capt. C. R. W. K. van Alderwerelt van Rosenburgh.

With plate 16.

Wherever the contrary has not been mentioned the following diagnoses were made after dried material and descriptions of the colours were taken from the field notes of the collectors.

The diagnoses of the new species from New Guinea, as far as collected by Dr. H. J. Lam, are provisory only; more detailed descriptions will be published elsewhere.

Aglaonema minus, Hk. f., Flor. Brit. I., VI, 530; Engl., in Pflzrch., LXIV (IV, 23 *Dc*), 32.

A specimen from Singapore. (Swamp, Garden Road, coll. . . .), determined by Ridley, is distinguished in having the spadix clavate, on a stalk hardly $^1/_2$ cm. long.

A plant from Borneo (Soengei Bloe-oe, Nieuwenhuis No. 673), referred by Engler to this species but previously called by him *A. Nieuwenhuisii*, is undoubtedly *not* this species; it is distinguished in having the petioles longer, much longer-sheathed, even to more than half its length, and the lamina proportionally shorther and broader with a broadly rotundate-cuneate or rounded base, a suddenly shortly acuminate apex and more numerous primary veins.

Aglaonema Nieuwenhuisii, Engl., MS. in Herb. Bog. — *A. minus*, Hk. f., Engl., Pflzrch., LXIV (IV, 23 *Dc*), 32, p. p.

Caudiculus internodiis $\pm$ $^1/_2$ cm. longis, apice foliatus. Foliorum petiolus 5—6 cm. longus, vagina $2^1/_2$–$3^1/_2$ cm. longa instructus; lamina in sicco tenuis, late oblonga, 9—12 $\times$ $4^1/_2$—6 cm., medio latissima, basi late rotundato-cuneata vel rotundata, apice abrupte acuminata; venae primariae $\pm$ 9 utrinque, conspicue arcuato-ascendentes, supra $\pm$ insculptae, subtus prominentes. Pedunculus fructifer $\pm$ 7 cm. longus. Spatha . . . Spadix . . .

The berries of the specimen on hand are rather oblong, but it is not to be seen whether they are ripe or not.

Borneo: Soengei Bloe-oe. (Nieuwenhuis No. 673).

Aglaonema novoguineensis, ENGL., in Pflzrch., LXIV (IV, 23 *Dc*) 13, fig. 3.

The specimen cultivated in the Buitenzorg Gardens, determined by ENGLER, is distinguished in having the petiole 25—30 cm. long, sheathing $^1/_2$—$^3/_4$ its length, terete beyond the sheath, gradually canaliculate towards the apex; lamina oblong, with a tendency to become subovate to subobovate, 30—37 × 12—16 cm., the base and apex blunt to very broadly rounded.

A plant from Ternate (Castela, open place in village, alt. 2 m., V. M. A. BEGUIN No. 1175, 23 November 1920), which may be this species, has the petiole longer-sheathing, the spathe pale-green, the spadix when young pale-yellow, afterwards yellow, with the apex reaching nearly the apex of the spathe.

Aglaonema oblongifolium (RXB.), KNTH, Enum., III, 55; ENGL., in Pflzrch., LXIV (IV, 23 *Da*), 13, fig. 4.— *A. nitidum,* KNTH, l.c., 76.— *Calla oblongifolia,* RXB., Flor. Ind., III, 516.

This species is unknown to me. Plants up till now cultivated in the Buitenzorg Gardens under the names of *A. oblongifolium* and *A. nitidum,* determined by ENGLER, are distinguished as follows: Leaves with the petiole 10—15 cm. long, terete beyond the sheath, somewhat canaliculate towards the apex (not narrowly grooved, ENGL., l.c., fig. 4 *c-c'*), the sheath 7—12 cm. long, with the margin finally scariose; lamina when fresh coriaceous, to $37^1/_2$ × $12^1/_2$ cm., slightly unqual-sided, the base more or less rotundate-cuneate, rather suddenly, shortly decurrent, the apex acuminate, with a rather long, cylindrical, fragile apiculum, veins when dry prominent on both sides but more distinctly on the lower side. Peduncle shorter, pale-green. Spathe when young convolute, 4—$7^1/_2$ cm. long, 1—2 cm. diam., when fully developed boat-shaped, ± $2^1/_2$ cm. broad, pale-yellowish-green, nearly white. Spadix nearly as long as the spathe or a little longer, on a stalk to $^1/_2$ cm. long; feminine inflorescence ± $^3/_4$—1 cm. long, oblique; ovaries shortly ovate, whitish; stigma broad, slightly impressed in the middle; masculine inflorescence ± 4—5 times as long as the feminine, with the 1—2 lower rows of stamens sterile, nearly resembling in shape the fertile ones which are pale-ochraceous or pale-rosy when very young. For the rest like the diagnosis given by ENGLER, except that one of the specimens, fruiting March 1921, has the berries white whilst ENGLER says „Baccae . . . , . . . purpureae".

Aglaonema marantifolium, BL., in Rumph., I, 153, tab. LXVI; ENGL., in Pflzrch., LXIV (IV, 23 *Dc*), 27, fig. 10 A—F.

In the description of this species ENGLER says „lamina supra atroviridis, ad nervorum latera pallide nebuloso-maculata", but in his key he writes „Foliorum lamina immaculata" and in his figure there are no spots to be seen. BLUME, in his original diagnosis, does not at all speak of spots and

in his beautiful plate the upper surface of the leave is bright-green without any trace of a pale, nebulose spot.

A fruiting plant from Luzon (Mt. Mariveles, R. MEYER, Bur. of Sci. No. 2586), received under the name of this species which is reduced by MERRILL to *A. oblongifolium* KNTH (Interpr. Rumph. Herb. Amboin., 129), but which does not agree with the specimens mentioned hereafter under *A simplex* BL., has the leaves with the lamina smaller than given in ENGLER's diagnosis 10—15 × $3^1/_2$—6 cm.

Aglaonema obovatum, V. A. V. R.

Caudiculus usque ± 15 cm. altus vel post forsitan altior. Foliorum petiolus 2—4 cm. longus, basi vagina $^3/_4$—$1^1/_2$ cm. longa, lata instructus; lamina in sicco tenuis, flaccida, obovato-oblonga, 10—15 × 4—$6^1{}_2$ cm., paullo inaequilatera, apice abrupte, obtusiuscule acuminata, breviter, graciliter apiculata, basi rotundato-cuneata; venae primariae ± 6 utrinque, ascendentes, longe juxta marginem procurrentes, cum venis secundariis gracilioribus supra insculptae, subtus conspicue prominentes; venae tertiariae quaternariaeque graciles. Pedunculus $2^1/_2$—3 cm. longus. Spatha obovato-ellipsoidea, usque $1^3/_4$ cm. longa, abrupte, breviter acuminata, pallide viridis. Spadix stipite 3—5 mm. longo suffultus, postremo spatham paullo superans; inflorescentia feminea breviter cylindracea; ovaria breviter conoideo-ovoidea, ± 2-seriata; stigma rotundum, peltatum, latitudine crassitudinem ovarii aequans; inflorescentia mascula breviter clavata, quam feminea ± 4—5-plo longior, alba, apice late rotundata.

Lingga Island: Panggak, in sago forest, alt. 30 m. (H. A. B. BÜNNEMEIJER No. 7039, 27 July 1919; Malay name: *Seri dewa*).

Aglaonema oblanceolatum, V. A. V. R.

Caudex usque $^1/_2$—1 m. altus, apice spiraliter foliatus. Foliorum petiolus $12^1/_2$—$27^1/_2$ cm. longus, vaginatus; vagina 10—$22^1/_2$ cm. longa, hinc inde laminam fere attingens, scarioso-marginata; lamina firma, oblanceolata, 30—40 × 9—12 cm., ad vel supra medium latissima, paullo inaequilatera, basi acuta vel anguste rotundato-cuneata, apice proportione abrupte, brevissime acuminata, brevissime apiculata; costa supra subplana, subtus prominens; venae angulo acuto ascendentes, arcuatae, longe prope marginem procurrentes, in sicco utrinque (subtus quam supra magis) prominentes; venae primariae secundariaeque 10—16 utrinque, primariae quam secundariae paullo crassiores; venae tertiariae quaternariaeque graciliores. Pedunculus 10—15 cm. longus. Spatha fusiformi-ellipsoidea, 6—7 cm. longa, 1—$1^1/_2$ cm. ampla, perpallide flavido-viridis, utrinque acutata. Spadix breviter petiolatus, 4—$4^1/_2$ cm. longus, $^3/_4$—1 cm. crassus; inflorescentia feminea relative longa, $1^1/_4$—$1^1/_2$ cm. longa; ovaria breviter ovoidea, perpallide viridia, subalba; stigma late discoideum, pallide flavidum;

inflorescentia mascula quam feminea tantum ± 2-plo longior, $2^3/_4$—3 cm. longa, perpallide flavida, sublactea, obtusa.

Probably very near *A. oblongifolium* KNTH.

Sumatra: Deli, Sibolangit and Deleng Tindjo, in forest, alt. 350—700 m. (J. A. LÖRZING No. 5352, 14 October 1917, No. 5887, 8 August 1918).

Forma *maximum:* Petiolus 10—15 cm. longus, usque 12 cm. longe vaginatus; lamina usque 45 × 12 cm. Spatha $8^1/_2$—$10^1/_2$ cm. longa. Spadix 1—$1^1/_2$ cm. longe stipitatus; inflorescentia feminea 2 cm. longa; ovaria stigmate . . . . . ; inflorescentia mascula 5—6 cm. longa, ...

Cultivated in the Buitenzorg Gardens, flowering September 1921.

Sumatra: Deli, Sibolangit. (W. DOCTERS VAN LEEUWEN).

Aglaonema simplex, BL., in Rumph., I, 152, tab. 36 *D*, 65; ENGL., in Pflzrch., LXIV (IV, 23 *Dc*), 22.

In contradiction with the diagnoses given by ENGLER many of the fruiting specimens of this species, occurring in the Buitenzorg Herbarium and especially those determined by ENGLER himself, have the petiole shorter (3—10 cm. long) and not rarely a smaller lamina; only the forma *macrophyllum*, of which ENGLER gives no diagnosis, has the petiole longer, $17^1/_2$—25 cm. long.

A specimen gathered in Sumatra (Palembang, Mt. Dempoe, E. Jacobson No. 509) has the lamina proportionally short and broad, 9—13 × $4^1/_2$—6 cm., and the spathe yellow.

With regard to the forma *macrophyllum* quoted above, I observe that of KOORDERS' Nos. 16126, 16129, 16155 mentioned in ENGLER's monograph, the second is wanting in our Herbarium and the first, of which we possess only a single leaf, a peduncle and two berries, has originally been determined by ENGLER as *A. oblongifolium* KNTH, and, with regard to the fine primary veins of the same, which are but slightly stouter than the secondary ones, it agrees in my opinion more with *A. oblongifolium* than with *A. simplex*, which is also the case with No. 16155. All our specimens of *A. simplex* have the primary veins distinctly stouter than the secondary ones.

Two forms united by intermediates:

Forma *typicum*: Leaves with the lamina rather equalsided, rotundate-cuneate to -truncate and sometimes slightly emarginate at the base.

Forma *inaequale*: Foliorum lamina basi inaequilatera, oblique rotundato-truncata, vel oblique rotundata, i.e. altero latere rotundato-cuneato vel rotundato, altero latere paullo longiore, rotundato vel rotundato-truncato, imo hinc inde brevissime decurrenti-cuneata. Spatha pallide viridis. Spadix albus.

Lingga Archipelago: Poeloe Singkep, near Manggoe, road side in forest, alt. 50 m. (H. A. B. BÜNNEMEIJER No. 7180, 2 August 1919).

Aglaonema brevivaginatum, V. A. V. R.

Caudex usque ± 50 cm. altus, postremo forsitan altior, internodiis longiusculis. Foliorum petiolus gracilis, 4—8 cm. longus, breviter et late vaginatus, vagina plerumque $^1/_2$—1 (raro $1^1/_2$—2) cm. longa, apice abrupte angustata; lamina in sicco tenuis, flaccida, oblongo- vel elliptico-lanceolata, raro ovato-lanceolata, 14—18×4—6 cm., vix inaequilatera, apice longiuscule acuminata, basi saepe utrinque aequaliter rotundato-cuneata, interdum rotundata, raro oblique rotundato-truncata, imo saepe breviter cuneato-decurrens; venae primariae ± 6 utrinque, cum venis secundariis distincte gracilioribus supra insculpta, subtus prominentes, angulo acutiusculo ascendentes, longe juxta marginem procurrentes; venae ceterae graciles. Pedunculus ± 4 cm. longus. Spatha oblonga vel obovoideo-oblonga, ± $2^1/_4$—$2^1/_2$ cm. longa, pallide viridis, acuminata. Spadix florifer spatham subsuperans, stipite fere $^1/_2$ cm. longo suffultus; inflorescentia feminea fere $^1/_2$ cm. longa; ovaria ovoideo-conoideo-lageniformia; stigma rotundato-peltatum, latitudine crassitudinem ovarii aequante; inflorescentia mascula subcylindracea, vix clavata, ± $1^1/_4$—$1^1/_2$ cm. longa, 4 mm. crassa, obtusa, alba; stamina inferiora sterilia, partim clavata, partim staminibus fertilibus similia.

Lingga: Panggak, in forest, alt. 60 m. (H. A. B. BÜNNEMEIJER No. 7044, 27 July 1919).

Aglaonema emarginatum, V. A. V. R.

Herba majuscula caudice ± 1 m. alto. Foliorum petiolus $12^1/_2$—$17^1/_2$ cm. longus, vagina 5—10 cm. longa instructus; lamina in sicco tenuiter papyracea, ovato-oblonga, 16—23 × 8—11 cm., basi leviter obliqua, plus minusve cordato-emarginata, apice abrupte, longiuscule acuminata, brevissime graciliterque apiculata; venae primariae 6—9 utrinque, patentes vel inferiores horizontales, parte superiore conspicue ascendentes, longe juxta marginem procurrentes, supra non vel vix impressae, subtus in sicco depressae; venae secundariae quam primariae partim paullo, partim distincte graciliores; venae tertiariae quaternariaeque graciles. Pedunculus 4—8 cm. longus. Spatha oblonga, subobovoidea, 5—6 cm. longa, involuta 2—3 cm. ampla, obtusa, abrupte, brevissime acuminata. Spadix spatham aequans vel superans, stipite $^1/_2$—$^3/_4$ cm. longo suffultus; inflorescentia feminea leviter oblique cylindracea, $^1/_2$—1 cm. longa, usque 1 cm. crassa; ovaria 3—4-seriata, depresso-globosa vel -ovoidea; stigma magnum, quam ovarium saepe latius, obconoideum, apice applanatum, rotundatum, medio saepe leviter depressum; inflorescentia mascula subcylindraceo-ellipsoidea, usque $5^1/_2$ cm. longa, medio usque $1^1/_4$ cm. crassa, apice obtusa; stamina inferiora sterilia, fertilia subsimulantia.

The label bears the field-note: flower pale-cream-coloured.

Poeloe Sebesi, between Java and Sumatra, in primeval forest, alt. to 100 m. (W. DOCTERS VAN LEEUWEN No. 5412, 29 April 1921).

Aglaonema latius, V. A. V. R.

Caudex usque ± 50 cm. altus, apice foliatus. Foliorum petiolus 6–10 cm. longus, plerumque ad $^2/_3$ longitudinis (interdum fere usque ad laminam) vaginatus; lamina in sicco tenuis, late ovata ad obovata, 16—23 × $10^1/_2$ cm. (quam lata plerumque 2-plo, interdum 3-plo longior), basi aequaliter vel oblique, late rotundato-cuneata, rotundata vel leviter emarginata, apice sat abrupte et acute acuminata, graciliter apiculata; venae primariae ± 6—8 utrinque, oblique ascendentes, sursum curvatae, longe juxta marginem procurrentes, in sicco utrinque leviter prominentes, quam secundariae crassiores; venae tertiariae quaternariaeque gracillimae. Pedunculus ± $4^1/_2$ cm. longus. Spatha oblonga, $3^1/_2$ cm. longa, acuminata. Spadix spatham ± aequans, stipite ± $^1/_2$ cm. longo suffultus, cylindraceo-ellipsoideus; inflorescentia feminea 3—5 mm. longa; ovaria breviter ovoidea, stigma late discoideum; inflorescentia mascula ± $2^1/_2$ cm. longa, + $^1/_2$ crassa, parte basali sterilis; stamina sterilia partim oblongo-ellipsoidea, partim stamina fertilia simulantia; baccae obscure rubrae.

One of the specimens has the label provided with the field note „flower pale-yellow" with which the spathe is probably meant.

Simaloer Island: in forest. (ACHMAD No. 487, 12 June 1918, flowering specimen, No. 1009, 29 March 1919, fruiting specimen).

Aglaonema grande, V. A. V. R.

Caudex usque 1—$1^1/_2$ m. altus, apice foliatus. Foliorum petiolus 10—15 cm. longus, crassiusculus, pallide viridis, vagina 5–$12^1/_2$ cm. longa instructus, supra vaginam teres, antice apicem versus planiusculus, vix canaliculatus; lamina coriacea, oblongo-ovata, 25—35 × $11^1/_2$–15 cm., vix inaequilatera, supra obscure viridis, subtus pallidior, basi aequaliter vel oblique rotundata vel late rotundato-cuneata, apice abrupte et acute acuminata, vix apiculata; costa supra apicem versus insculpta, ceterum leviter prominens, planiuscula, subtus valde prominens, semiteres, quam lamina pallidior; venae primariae ± 8—12 utrinque, supra insculptae, subtus prominentes, ascendentes vel inferiores subhorizontales, conspicue sursum arcuatae; venae secundariae quam primariae graciliores; venae tertiariae quaternariaeque gracillimae, absconditae. Pedunculus ± 9 cm. longus, proportione gracilis, pallide viridis. Spatha oblonga, ± 5 cm. longa, $1^1/_2$ cm. ampla, perpallide viridis, fere alba, basi obliqua, apice abrupte, breviter acuteque acuminata. Spadix in juventute spatham aequans vel post probabiliter paullo longior, stipite $^1/_2$ cm. longo, basi obliquo suffultus; inflorescentia feminea ± $^1/_2$ cm. longa; ovaria 2–3-seriata, breviter ovoidea, pallide flavescenti-viridia; stigma latiuscule discoideum, citrinum, medio leviter foveolatum; inflorescentia mascula cylindracea, quam feminea ± 7-plo longior, $3^1/_2$ cm. longa, $^3/_4$ cm. crassa, obtusa; stamina inferiora 2—3-seriata sterilia, stamina fertilia simulantia, sterilia lactea, fertilia albida.

The description is taken from living specimens cultivated in the Buitenzorg Gardens, flowering March 1921.

Borneo (NIEUWENHUIS, No. 863).

Aglaonema subarborescens, V. A. V. R.

Caudex erectus, carnosus, usque ad 2—3 m. altus. Foliorum petiolus 15—27 1/2 cm. longus, vaginatus; vagina 12—22 cm. longa, in foliis magnitudinis modica interdum basin laminae fere attingens, a basi lata apicem versus sensim angustata; lamina in sicco tenuis, ovata, 25—35×11—25 cm., basi late rotundato-cuneata ad rotundato-truncata et non vel vix emarginata, apice obtusiuscula vel leviter acuminata, brevissime apiculata; venae primariae ± 10—15 utrinque, conspicue arcuato-ascendentes, supra in sicco partim insculptae, partim non insculptae, subtus prominentes, inferiores basin versus subhorizontales; venae secundariae quam primariae paullo graciliores, tertiariae gracillimae. Pedunculus pro ratione gracilis, ± 10—17 1/2 cm. longus. Spatha oblonga (navicularis?), 4—5 1/2 cm. longa, pallide viridis, subalba, breviter acuminata. Spadix quam spatha paullo brevior, stipite 1—2 cm. longo, pro 1/2—3/4 parte cum spatha connato suffultus; inflorescentia feminea brevissima vel usque 1/2 cm. longa; ovaria breviter ovoidea; stylus brevis crassusque; stigma late discoideum; inflorescentia mascula cylindracea vel ellipsoidea, quam feminea ± 5—6-plo longior, 2 1/2—3 1/4 cm. longa, 1/2—1 cm. crassa, pallide viridis, subalba, obtusa.

Malay name: *Sandar*.

Sumatra: Mt. Malintang, in forest near river, alt. 1100 m. (H. A. B. BÜNNEMEIJER No. 4311, 5 August 1918); Mt. Sago, border of forest, alt. 1150 m. (H. A. B. BÜNNEMEIJER No. 4351, 7 August 1918).

Aglaonema elongatum, V. A. V. R.

Caudex usque 50 cm. longus vel longior, a basi apicem versus sensim paullo attenuatus, apice foliatus, medio ± 2 cm. crassus, internodiis ± 2 cm. longis. Foliorum petiolus 6—12 cm. longus, vagina 4 1/2—10 cm. longa instructus, ceterum antice leviter canaliculatus, interdum vaginam versus teres; lamina in vivo coriacea, longe lineari- vel lanceolato-ovata, quam lata 5—7-plo longior, 22—28×3 3/4—5 1/2 cm., paullo inaequilatera, altero latere usque 1/4 latiore, dimidia parte basali latissima, apicem versus sensim subfalcato-angustata, supra obscure viridis, copiose minutissime albido-puncticulata, acumine utrinque latere costae linea angusta, flavido-viridi, intramarginali munita, basi rotundata vel late rotundato-cuneata, apice plus minusve sensim acuminata; costa supra apicem versus insculpta, ceterum leviter plano-prominens, media parte 1-, basin versus 2-sulcata, sulcis non profundis, subtus valde prominens, semiteres; venae primariae ± 4—5 utrinque, superiores suberectae, inferiores angulo acutiusculo ascendentes, longe juxta marginem procurrentes, supra insculptae, subtus basin quam apicem versus distinctius prominentes; venae secundariae quam primariae

paullo graciliores; venae tertiariae gracillimae, absconditae. Pedunculus ± 4 cm. longus. Spatha elongato-oblonga, ± 4½ cm. longa, 9 mm. ampla, viridis, apice breviter, acute acuminata. Spadix quam spatha paullo brevior, cylindraceus, stipite ± ½ cm. longo suffultus; inflorescentia feminea ± ½ cm. longa, pistillis 2—3-seriatis; ovaria crasse ovata, viridia, apice conoideo-attenuata; stylus crassus, perbrevis; stigma discoideum, latum, pallide sulfureum, in medio leviter impressum; inflorescentia mascula quam feminea ± 6-plo longior, ± 3¼ cm. longa, ¾ cm. crassa; stamina in juventute alba, stamina serierum 2—3 inferiorum sterilia, interdum oblongo-ellipsoidea, ceterum plerumque stamina fertilia plus minusve simulantia.

Near *A. Schottianum* MIQ. — The description is taken from a living specimen cultivated in the Buitenzorg Gardens, flowering March 1921.

Borneo: Mt. Tenampak. (Capt. VAN GENDEREN STORT's North Borneo Boundary Commission, Coll. AMDJAH).

Aglaonema pictum (RXB.) KNTH, Enum., III, 55; ENGL., in Pflzrch., LXIV (IV, 23 *Da*), 33. — *Calla picta*, RXB., Flor. Ind., III, 516; WIGHT, Icon., III, tab. 804 (not 1804).

Specimens cultivated in the Buitenzorg Gardens, determined by ENGLER, having flowered March 1921, are distinguished as follows: Leaves with the petiole 2—4 cm. long, the anterior side more or less canaliculate between the sheath and the lamina, the sheath 1½—3 cm. long, finally scariose and more or less dilacerated; lamina elliptical-oblong or ovate, to 15 × 7½ cm., the upper surface dark-green, opaque-velutinous, spotted, the spots very irregular and irregularly scattered, pale-yellowish-green, here and there pale-greyish-green, especially near the costa, the base rotundate or rotundate-cuneate, occasionally slightly emarginate, the apex acuminate, shortly apiculate; costa above impressed towards the apex, for the rest prominent, grooved in the lower part, beneath prominent, semiterete; primary veins impressed above, prominent beneath, stouter than the secondary ones. Peduncle 2½—3 cm. long, pale-green. Spathe broadly oblong or obovoid, not gibbous, 2¼—2¾ cm. long, 1¾—2 cm. diam., pale (green, yellowish-green or yellow), suddenly shortly acuminate. Spadix on a stalk 6—8 mm. long, at length distinctly exceeding the spathe; feminine inflorescence 3—6 mm. long; ovaries shortly ovate, pale (green or yellow); staminodes occasionally present, ellipsoidal, ivory-white, rather acute or subacute; masculine inflorescence elongate-clavate, to 2—2½ cm. long, the lower part sterile, to ½—1 cm. long, the upper part fertile; sterile stamens pale-yellow or ivory-white, the lower resembling the staminodes of the feminine inflorescence, the higher nearly resembling the fertile ones; fertile stamens dirty-white or ivory-white.

The young plants have the leaves with the spots not irregularly scattered but confluent into a pale-greyish-green line on each side of and close to the costa.

Var. **tricolor,** N. E. BR., MS.; ENGL., l.c. — Another plant cultivated in the Buitenzorg Gardens, flowering and fruiting February and March 1921, which might be considered as a form of this variety, is distinguished in having the entire lamina spotted, rather marbled with dark-green, bright-green and pale-grey-green but so that the bright-green portions are dominant; berries oblong, + $1^1/_2$ cm. long, 1 cm. thick, carmine-red.

Aglaonema Roebelenii (LIND.), GENT., Pl. cult. Serr. Jard. bot. Brux., 11; ENGL., in Pflzrch., LXIV (IV, 23 *Dc.*), 19. — *Schismatoglottis Roebelenii* LIND., MS. (?).

I have not seen an authentic specimen of this species. Plants from an unknown origin, cultivated in the Buitenzorg Gardens, determined by ENGLER as *A. Roebelenii*, are distinguished from ENGLER's diagnosis as follows: Stems to 1 m. high, 5 cm. thick, erect or at length reclinate, densely foliate at the apex. Leaves with the petiole $7^1/_2$—20 cm. long, green, with the sheath 6—12 cm. long, narrowly scariose at the edge; lamina elliptical-oblong, to 30 × 15 cm., somewhat unequal-sided, the apex very shortly acuminate, the upper surface dark-green, maculate; spots pale-greyish-green, minutely darker-spotted or puncticulate, those of the smaller leaves mostly confluent into irregularly flammiform or marbled lines running along the primary veins and the lines commonly confluent again into a very broad, irregularly eroso-lacerated line on each side, medial between the costa and the margin, as is invariably the case in the larger leaves. Cataphylla linear-lanceolate, shorter than the peduncle, pale-yellow. Peduncle 4—7 cm. long, green. Spathe elongate-oblong, $3^1/_2$—$5^1/_2$ cm. or more long, $^1/_2$—$^3/_4$ cm. diam., green. Spadix on a stalk $^1/_2$—$^3/_4$ cm. or more long; ovaries depresso-globose or -ovate, pale-green, the apex subconically attenuated into a short and thick style; stigma broader than the style, slightly foveolate in the middle; masculine inflorescence very pale-green or-yellow, nearly white; berries oblong, when young green, afterwards orange or minium-red, when ripe carmine-red, ± $1^1/_2$ cm. long, nearly 1 cm. thick.

Aglaonema robustum, V. A. V. R.

Planta robusta, caudice usque $1^1/_2$ m. vel plus longo, basi ± 6 cm. crasso, apice foliato. Foliorum petiolus $17^1/_2$—$27^1/_2$ cm. longus, vagina + 15 cm. longa instructus, supra vaginam teres, antice apicem versus pro ratione late sed non profunde canaliculatus; lamina coriacea, elliptico-oblonga, 35—40 × 14—16 cm., medio latissima, utrinque subaequaliter angustata, supra obscure viridis, secus venas pallidius viridi-maculata, maculis plerumque in fasciis irregulariter erosis confluentibus, subtus laete viridis, basi late rotundato-cuneata, apice obtusiuscula, acuta vel brevissime acuminata, brevissime apiculata; costa supra leviter depressa, subtus valde prominens, teres; venae primariae ± 6—8 utrinque, subtus leviter prominentes, basi patentes, ceterum sursum curvatae; venae secundariae quam primariae paullo

Amorphophallus Brooksii v. A. v. R.

graciliores, tertiariae gracillimae, absconditae. Pedunculus ± 10 cm. longus, viridis. Spatha elongato-conoideo-oblonga, ± 7 cm. longa, $1^1/_4$ cm. ampla, pallide viridis, basi obliqua, apice acuta. Spadix quam spatha paullo brevior, stipite 2 cm. longo, pro dimidia parte superiore libero, casso suffultus, basi obliquus; inflorescentia feminea $^1/_4$—$^3/_4$ cm. longa; ovaria 1—3-seriata, breviter ovoidea, perpallide viridia; stigma late discoideum, pallide sulfureum, in medio paullo foveolatum; inflorescentia mascula conoideo-cylindracea, quam feminea ± 6-plo longior, 3 cm. longa, basi fere 1 cm, crassa, eburnea (potius perpallide flavida), obtusa; stamina inferiora pauci-seriata sterilia, partim subprismatica, partim stamina fertilia simulantia.

The description is made after specimens from an unknown habitat, cultivated in the Buitenzorg Gardens. — Near *A. commutatum* SCHOTT.

Amorphophallus Brooksii, V. A. V. R., in Bull. Btz., I (1920) 368; this Bull., tab. 16.

The photograph, kindly sent to me by Mr. C. J. BROOKS, the discoverer of the species, has been taken by Mr. A. G. GOW, from Lebong Tandai, quite near the spot where the original specimen was found.

Cyrtosperma Merkusii (HASSK.), SCHOTT; V. A. V. R., this Bull., I (1920) 374.

A living specimen from Sumatra (Deli, Haboko, W. DOCTERS VAN LEEUWEN), cultivated in the Buitenzorg Gardens, is distinguished by the following characters: Leaves with the petiole green, the prickles often reddish; lamina green, the antical lobe nearly triangular, very shortly acuminate, shortly apiculate; spathe with the outer side greenish-yellow, longitudinally darker-veined except at the base, purple between the veins, the inner side greenish-yellow, the edges imbricating at the base only, the apex rather shortly acuminate; spadix with the ovaries oblong, with a purple-tinted, bluntly conoid apex slightly surpassing the tepals which are green-yellow, at length dark-olivaceous at the apex.

Cyrtosperma hastatum, V. A. V. R., this Bull., I (1920) 375.

A living young plant from an unknown habitat, probably from New Guinea, cultivated in the Buitenzorg Gardens and that may belong to this species, is distinguished by the following characters: Petiole more than 50 cm. long, at length dirty-brown, densely olivaceo-verruculose among the prickles; lamina green; peduncle green or yellow-green, slightly olivaceous towards the base, very copiously pale-verruculose-puncticulate among the prickles; spathe long-ovate-lanceolate, $27^1/_2 \times 5$ cm., broadest near the base, long-acute, dirty-yellow, the lower part pale-glanduloso-puncticulate, the stoutest veins green, the very base green on the outer side, purple on the inner side, the upper $^2/_3$ portion longitudinally striated, the stripes

relatively broad, brown-purple on the outer side, black-purple and pale-puncticulate on the inner side; spadix dirty-yellow; ovaries cylindraceo-lageniform, green, 1-ovulate.

Epipremnopsis Zippeliana, V. A. V. R. — ? *Epipremnum Zippelianum*, ENGL. p. p., in Pflzrch., XXXVII (IV, 23 *B*), Arac.-Monster., 66; in BECC., Mal., I, tab. XX, fig. 10—12.

Caudex usque 4 m. alte scandens, in sicco hic illic ruguloso-asperulus, cataphyllis stupose decompositis obsessus. Foliorum petiolus 25—40 cm. longus, antice canaliculatus, basi breviter vaginatus, in sicco hic illic puncticulato- vel ruguloso-asperulus; lamina rotundato- vel cordato-ovata vel rotundato-cordata, 35—50 cm. longa, ± aequilata vel paullo angustior, usque ad costam pinnatim incisa; laciniae 3—5 utrinque, obovato-lanceolatae; lacinia terminalis recta; laciniae laterales subfalcato-curvatae, inaequilaterae, latere altero $1^1/_4$—$1^3/_4$-plo latiore, apice breviuscule ad longiuscule et acute acuminatae vel valde oblique truncatae angulo antico acute acuminato, postico obtuso vel rotundato, basin non-perforatum versus plus minusve (laciniarum superiorum minus, inferiorum valde) angustatae, basi abrupte dilatatae; laciniae maximae usque 30 × 8 cm.; venae primariae in laciniis solitariae; venae secundariae 2, inter costam marginemque ± medianae, venae tertiariae 2, ad marginem approximatae, omnes inter se et cum vena primaria venis secundariis tertiariisque obliquis unitae; venae quaternariae numerosae, reticulatae. Pedunculus $17^1/_2$—25 cm. longus, in sicco graciliter, longitudinaliter rugulosus. Spatha conchiformis, + 10 cm. longa, explanata + $6^1/_2$ cm. lata, longitudinaliter venosa, extus in sicco graciliter puncticulato-asperula, cellulis spicularibus deficientibus. Spadix stipitatus, florifer cylindraceo-clavatus, 3 cm. longus et 1 cm. crassus vel paullo major, stipite + 1 cm. longo, fructifer 5 cm. longus et $2^1/_2$ cm. crassus, stipite $1^1/_2$ cm. longo; ovaria conferta, apice applanata, angulosa, cellulis spicularibus deficientibus, ovula 2; stigma majusculum, oblongum, leviter elevatum; baccae obovoideae, apice subrotundatae, aurantiaco-rubrae; semina 2, lateraliter compressa, oblique obovata, i.e. leviter curvata, subreniformia, embryo crassus, curvatus.

The original label bears the note „petiole shortly puberulo-asperulous", but I could not find any trace of hairs. — The cataphylla are provided with numerous acicular cells which are wanting in the other portions of the plant, as is the case in all the specimens of *Epipremnopsis media* ENGL., occurring in the Buitenzorg Herbarium, determined by ENGLER. Some of the lateral laciniae of the leaf resemble exactly that of *Epipremnum Zippelianum* ENGL. represented in ENGLER's figure quoted above and it may be possible that this species is identical with the *Epipremnum Zippelianum* reported from Ternate but perhaps not from the other habitats given by ENGLER in Pflanzenreich. The original *Raphidophora Zippeliana* SCHOTT from New Guinea is unknown to me.

Ternate: Foramadiahi, in forest, alt. 1400 m. (V. M. A. BEGUIN No. 1197, 26 November 1920).

Epipremnopsis magnifica, V. A. V. R. — ? *Epipremnum magnificum*, ENGL., p. p., in Pflzrch., IV (23 *B*), Arac.-Monster., 65; in BECC., Mal., I, 274, tab. XX, fig. 6—9.

A praecedenti differt caudice in sicco conspicue, longitudinaliter, acute cristato-rugoso, verruculoso-asperulo, primum cataphyllis mox dilaceratis, caducis abscondito. Foliorum petiolus duplo longior, minutissime puncticulato-asperulus vel sublaevis, in sicco conspicue, longitudinaliter sulcatus, basi brevissime vaginatus; lamina oblonga vel ovata, $1^1/_2$-plo longior, laciniis lateralibus ± 10 utrinque, lanceolatis, rectis vel plus minusve falcato-curvatis, apicem versus sensim angustatis, basin versus plus minusve conspicue contractis, imo dilatatis, maximis usque 30 × 5 cm.; venae primariae in laciniis solitariae, venis secundariis, tertiariis quaternariisque, marginem approximatis comitatae. Pedunculus $2^1/_2$—4 cm. longus. Spatha e basi subconvoluta conchiformi-navicularis, ± $3^1/_2$ cm. longa, $1^1/_2$ cm. lata, caduca. Spadix sessilis, oblongo-cylindraceus, florifer ± $2^1/_2$ cm. longus, $^3/_4$—1 cm. crassus, fructifer 5—8 cm. longus, 2 cm. crassus; ovaria viridi-flavida; stigma elevatum, interdum rotundum, plerumque oblongum vel breviter lineare; baccae rubrae, plerumque 1-spermae; semina obovato-oblonga, recta.

New Guinea: near Pionier Bivak and Prauwen Bivak, hemiepiphytical in forest, alt. 10 m. (H. J. LAM Nos. 487, 582, 30 June and 7 July 1920).

Holochlamys elliptica, V. A. V. R.

A. *H. Beccarii* ENGL. differt foliis petiolo maxime usque ad medium vaginato, quam lamina $1^1/_2$-plo longiore, lamina paullo minore, elliptica, utrinque subaequaliter angustata et ± abrupte acuteque acuminata, venis primariis inter 12 et 20 utrinque, pedunculo breviore, florifero $12^1/_2$ cm. longo, spadice brevissime stipitato, graciliore, perigoniis 2 mm. altis, antheris maturis totaliter exsertis, horizontaliter divergentibus, thecis elongatis, ± lateraliter dehiscentibus, ovariis quam perigoniis altioribus, ± 3 mm. altis, apice + rotundato-truncatis, stigmatibus paullo elevatis, inferioribus saepe 3-lobatis, superioribus saepe longitudinaliter oblongis.

New Guinea: near Pionier Bivak and Prauwen Bivak, in forest, alt. 10 — 90 m. (H. J. LAM Nos. 500, 1046, 2 July and 5 September 1920).

Homalomena rubrovaginata, V. A. V. R.

Chamaecladon. — Herba usque ± 25 cm. alta, caudice perbrevi vel e basi decumbente erecto et 15 cm. alto, usque ad internodia superiora radices emittente. Foliorum petiolus 3—$7^1/_2$ cm. longus, $^1/_3$ vel $^1/_2$ vaginatus,

viridis, ima pallide roseus, antice canaliculatus, ceterum cum parte inferiore costae venis primariis decurrentibus longitudinaliter rugosus; vagina obscure rosea (potius perpallide viridis vel rosea et punctis minutis vel liniis brevissimis, innumerabilibus, coccineis munita), pallide marginata; lamina herbacea, late elliptica, 5—10 × 3—5 cm., medio latissima, saepe paullo inaequilatera, uno latere usque ± $1^1/_4$-plo latiore, utrinque aequaliter angustata, acutiuscula, supra obscure smaragdina, nitidula, subtus pallidior, basi late rotundato-cuneata, margine crispatulo-undulata, apice brevissime acute apiculata; venae primariae 3—5 utrinque, leviter prominentes, oblique ascendentes, apicem versus sursum curvatae, basi decurrentes; venae secundariae tertiariaeque sensim graciliores. Pedunculus 2—$2^1/_2$ cm. longus, viridis. Spatha fusiformi-oblonga, $1^1/_2$—2 cm. longa, 3—6 mm. ampla, demum hians, viridis vel flavida, apice breviter acute acuminata. Spadix brevissime stipitatus, fusiformi-cylindraceus, $1^1/_4$—$1^1/_2$ cm. longus, 2—3 mm. crassus, albidus vel pallide flavidus; inflorescentia feminea 2—3 mm. longa; ovaria crasse ovoidea, 2-locularia, ovulis basifixis; stigma discoideum, rotundum, quam apex ovarii latius; staminodia crasse clavata, sessilia, fere ovaria aequantia; inflorescentia mascula 10—12 mm. longa, acuta; flores masculi saepe 3-andri; antherae thecis sub connectivo non occultis.

The description is taken from fresh material.

Java: Buitenzorg, Mt. Tjipoetih, along water-side in forest, alt. 600 m. (R. C. BAKHUIZEN VAN DEN BRINK No. 5030, 24 September 1920).

Var. **subpurpurea**: Foliorum petiolus (vagina excepta) aeneo-viridis; lamina supra nigro-viridis, subtus sordide purpurea (rubra et dense, pallide viridi-puncticulata); venae primariae subtus distincte prominentes. Pedunculus sordide purpureus (viridis et rubro-puncticulatus), basin versus sordide roseus. Spatha parte inferiore sordide purpurea, sursum aeneo-viridis. Spadix ovariis pallide viridibus, floribus masculis perpallide viridi-flavidis, subalbis, 2—3-andris.

The description is taken from a living plant cultivated in the Buitenzorg Gardens.

Java: Mt. Tjikorai.

Homalomena pygmaea (HASSK.), ENGL., Pflzrch., LV (23 *Da*), Arac.-Homal.-Schismat., 34., fig. 15. — *Aglaonema pygmaeum*, HASSK., Cat. Hort. Bog., 57.

H. J. LAM's No. 722 from New Guinea (near Pionier Bivak, in forest, alt. 10 m., 29 July 1920) seems to be a form of this species or a nearly related species. It has, however, the flowers too old for identification and differs from the common form of this in having the leaves with the lamina oblanceolate, broadest above the middle, with the base on one side somewhat longer than on the other side, and, according to the field note, the

flowers with the spathe green to greenish-white, the spadix white or yellow-white.

Forma *longipes*: Foliorum petiolus quam lamina $1^1/_2$—2-plo longior, 8—18 cm. longus; lamina oblonga, 4—10 × 2—5 cm., et basi acuta, interdum ovata, quam lata $1^1/_2$-plo longior et basi obtusa. — Island Simaloer near north-west coast of Sumatra: Tapah, Dèfajan, in forest. (ACHMAD No. 1723, 12 March 1920).

Homalomena lilacina, V. A. V. R.

Chamaecladon. — *H. Lauterbachii* ENGL. affinis sed dimensibus fere omnibus majoribus. Foliorum petiolus in planta adulta quam lamina ± $1^1/_2$-plo longior, longius vaginatus; lamina conspicue sagittata, 13—20 × 4—7 cm., in juventute lilacina. Pedunculi 2—4 cm. longi. Spatha ovoideo-fusiformis, $2^1/_2$—3 cm. longa, 3—4 mm. ampla, in juventute lilacina, basi acuta, apice longe, graciliter cuspidata. Spadix breviter stipitatus; inflorescentia ferminea cylindracea, 6 mm. longa, 2 mm. crassa; ovaria crasse ovoidea; staminodia obconoideo-clavata; inflorescentia mascula ellipsoideo-cylindracea, quam feminea ± 2-plo longior, in medio 2 mm. crassa.

New Guinea: near Pionier Bivak, terrestrial in forest, alt. 10 m. (H. J. LAM No. 755, 31 July 1920).

Homalomena sebessiana, V. A. V. R.

Euhomalomena. — Herba maxima caudice usque ± $^1/_2$ m. alto. Foliorum petiolus ± 65 cm. longus, ultra tertiam partem vaginatus; lamina in sicco papyracea, sagittato-cordata, ± 50 × 30 cm., lobo antico triangulari vel oblongo-triangulari, 38 × 30 cm., linea plus minusve extrorsum curvata in acuminem angustato, lobis posticis obtuse triangularibus, 12—13 × 14 cm., vix extrorsis, sinu rectangulari separatis; venae primariae 8—9 utrinque, ± 4 basales radiantes et apicem versus conspicue sursum curvatae, costales sensim ascendentes, apicem versus arcuatae; venae secundariae, tertiariae quaternariaeque sensim graciliores, tertiariae quaternariaeque inferne inter primarias obliquae. Pedunculus. . . . . Spatha oblonga, ± 9 cm. longa, convoluta $2^1/_2$—3 cm. ampla, antice late hians, marginibus ad basin solum imbricatis, apice acutiuscula, brevissime apiculata. Spadix stipite $^3/_4$ cm. longo, crasso suffultus; inflorescentia feminea cylindracea, 2 cm. longa, 1 cm. crassa; ovaria subobovoideo-oblonga, apice rotundata; stigma sessile, majusculum, depresso-globosum (crasse lentiforme); staminodia pistilla aequantia, obconoideo-obovoidea, graciliter stipitata (fig. a); inflorescentia mascula conoideo-ellipsoidea, $6^1/_2$ cm. longa, inferne 1—$1^1/_4$ cm.

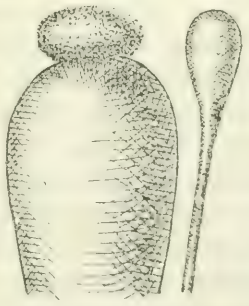


Fig. a.

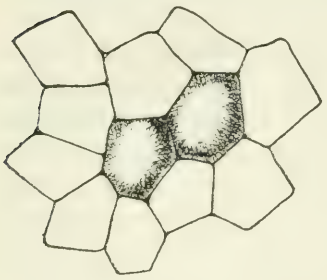


Fig. b.

crassa, apicem obtusiusculum versus attenuata, $^1/_6$ parte basali sterilis, staminodiis confertis, brevibus, pro ratione latissimis, irregulariter 4—6-angulosis, apice rotundatis composita (fig. b); flores masculi fertiles 4- vel saepius 5-, interdum 6-andri, subirregulariter 4—6-angulosi; thecae sub connectivo crasso, apice truncato absconditae (fig. c).

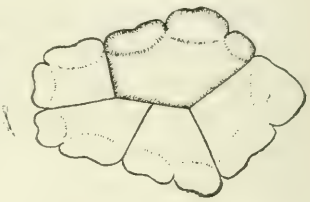


Fig. c.

The label bears the field-note: flower cream-coloured. — Distinct by the rather large sterile basal portion of the masculine inflorescence.

Sebesi (between Java and Sumatra): in dry brook-bed between high rocks in primeval forest near sea-shore (W. DOCTERS VAN LEEUWEN No. 5349, 27 April 1921).

Homalomena rosea, V. A. V. R.

Euhomalomena. — Caudex brevis. Foliorum petiolus usque 1 m. longus, teres sed antice apicem versus leviter canaliculatus, potius applanatus angulis obtuse rotundatis, basin versus $^1/_5$ longitudinis vaginatus, olivaceus, apicem versus pallide viridis; lamina in vivo subcoriacea, supra obscure viridis, subtus pallidior, in circuitu late ovato-cordata, usque 60 × 45 cm., lobo antico apice obtusiusculo, abrupte brevissime acuminato, lobis posticis + $^1/_2$ longitudinis lobi antici metientibus, semireniformibus, introrsis, sinu angusto acuto separatis, hinc inde leviter imbricatis; costa subtus valde prominens, supra flavido-viridis; venae primariae 10—12 utrinque, subtus prominentes, 4—5 basales radiantes, costales ascendentes, omnes apicem versus sursum curvatae; venae secundariae, tertiariae quaternariaeque sensim graciliores. Pedunculus 6—9 cm. longus, fructifer probabiliter longior, perpallide sordide roseus, lineis angustis, compactis, obscure roseis, non interruptis longitudinaliter striatus. Spatha oblonga, $7^1/_2$—8 cm. longa, 2—3 cm. ampla, abrupte, brevissime apiculata, intus albida, extus perpallide rosea, lineis angustis, compactis, obscure roseis, copiosissime interruptis longitudinaliter striata. Spadix breviter stipitatus, spatham aequans vel paullo superans; inflorescentia feminea cylindracea, $2^1/_2$—$3^1/_2$ cm. longa, 1—$1^1/_4$ cm. crassa; ovaria oblonga, perpallide viridia, subalba; stigma late discoideum, crassitudinis ovarii, sordide album; staminodia pistilla aequantia, obconoideo-clavata, alba, graciliter stipitata; inflorescentia mascula conoideo-cylindracea, ± $4^1/_2$ cm. longa, crassitudinis inflorescentiae femineae, eburnea, obtusiuscula vel acutiuscula; flores masculi 3- vel interdum 4-andri, thecis sub connectivo crasso, apice truncato absconditis; stamina inferiora, 1—2-verticillata sterilia.

The description is taken from a living plant from Sumatra (Sibolangit, W. DOCTERS VAN LEEUWEN), cultivated in the Buitenzorg Gardens, having flowered August 1921. — It may be possible that this is identical with LÖRZING's No. 5324, formerly determined by me as a form of *H. rubra* HASSK., but the latter has the spadix distinctly shorter than the spathe, even when fruiting, and the different portions of this have an aromatic and not at all an awfully stinking smell.

Homalomena ensiformis, V. A. v. R. — *H. Miqueliana*, SCHOTT, ENGL. & KRAUSE, in Pflzrch., LV (IV, 23 *Da*), Arac.-Homal.-Schism., 69, p.p.

Euhomalomena. — Foliorum petiolus $17^1/_2$—30 cm. longus, $^2/_3$—$^3/_4$ longitudinis vaginatus; lamina in sicco subcoriacea, elongato-lanceolata, quam lata 5—7-plo longior, $27^1/_2$—40 × 4—8 cm., supra medium latissima, basin acutam vel late rotundato-cuneatam et abrupte breviterque acuminatam (in specimine nec subtruncatam, nec emarginatam) versus sensim angustata, apice longiuscule acuteque acuminata, graciliter apiculata; venae omnes distinctius prominentes, erecto-patentes, apicem versus sursum arcuatae, longe procurrentes; venae primariae 5—6 utrinque; venae secundariae, tertiariae, quaternariaeque sensim graciliores. Pedunculus 20—25 cm. longus. Spatha 9—12 cm. longa, paullo infra medium contracta, tubo oblongo, usque $5^1/_2$ cm. longo, lamina cylindraceo-conoidea, usque $6^1/_2$ cm. longa, acuta. Spadix stipite 3 — 5 mm. longo suffultus, 6 — 8 cm. longus; inflorescentia feminea fusiformi-cylindracea, usque $2^3/_4$ cm. longa, $^1/_2$ cm. crassa, staminodiis crassis, depresso-globosis, graciliter longe stipitatis, pistilla aequantibus; ovaria conoideo-lageniformia vel -ovoidea, 3-locularia; stigma magnum, late discoideum, ± rotundum, fovea centrali, 3-radiata (sub-3-angulosa) obscure lobatum; inflorescentia mascula a feminea interstitio brevi, nudo vel floribus paucis, sparsis, partim sterilibus, partim fertilibus munito separata; flores masculi 3- vel saepius 4-andri; stamina brevissima, thecis sub connectivo crasso, apice truncato, anguloso absconditis.

Near *H. Miqueliana* SCHOTT.

Borneo. (HALLIER No. 1465).

Homalomena Miqueliana, SCHOTT, in Ann. Mus. Bot. L. B., 126; ENGL. & KRAUSE, in Pflzrch., LV (IV, 23 *Da*), Arac.-Homal.-Schism., 69, fig. 44.

SCHOTT's original diagnosis of this species differs from the description and partly from the figure given by ENGLER and KRAUSE principally as follows: Leaves with the petiole $22^1/_2$—$27^1/_2$ cm. long; lamina linear-oblong, 20—$27^1/_2$ × 5—$7^1/_2$ cm., the edges parallel except in the upper $^1/_3$ portion, the base abruptly contracted, subtruncate with a rounded angle (i. e. broadly rotundate-cuneate-subtruncate), the very base very shortly cuneate, the apex subabruptly cuspidate-acuminate. Peduncle 15—20 cm. long. Spadix with

the masculine inflorescence somewhat remote from the feminine, with the lower stamens scattered, submutilate (i. e. rather undeveloped, sterile).

HALLIER's No. 1465 from Borneo, referred by ENGLER and KRAUSE to this species, formerly determined by ENGLER as *H. lancea* RIDL., is in my opinion not this species. See my description of *H. ensiformis* V. A. V. R.

Var. **truella.** Differs from SCHOTT's diagnosis of the type as follows: Foliorum petiolus $42^1/_2$—$47^1/_2$ cm. longus, $^2/_3$—$^3/_4$ longitudinis vaginatus; lamina in sicco subcoriacea, quam lata 4—$4^1/_2$-plo longior, $37^1/_2$—45 × 9—11 cm., basi conspicue oblique rotundata ad truncata angulis rotundatis, imo abrupte breviter cuneata; venae prominulae; venae primariae 5—6 utrinque; venae ceterae (secundariae, tertiariae, quaternariaeque) sensim graciliores. Cataphylla linearia, ± 22 × $1^1/_2$ cm., obtusa. Pedunculus 20—25 cm. longus. Spatha viridis; tubus oblongus, $4^1/_2$ cm. longus, $1^1/_2$ cm. amplus; lamina lineari-conoidea, $8^1/_2$ cm. longa, 1 cm. ampla, acuta. Spadix albus, stipite ± $^1/_2$ cm. longo suffultus; inflorescentia feminea cylindracea, ± $2^1/_2$ cm. longa, 1 cm. crassa, staminodiis crassis, depresso-globosis, longe filiformi-stipitatis, pistilla aequantibus; ovaria depresso-globosa, basi apiceque applanata (fig. d), 3-locularia; stigma magnum, discoideum, rotundum, fovea centrali, profundiuscula, 3-radiata (sub-3-angulosa) obscure 3-lobatum; inflorescentia, mascula a feminea interstitio nudo, brevissimo separata, subcylindracea, 8 cm. longa, $^3/_4$ cm. crassa, supra basin paullo contracta, apicem versus plus minusve attenuata; antherae 3- vel saepius 4-andri, staminibus inferioribus sterilibus, haud sparsis. — Riouw Archipelago: Pulo Bintan, Anjoelai, in forest, alt. 30 m. (H. A. B. BÜNNEMEIJER No. 6200, 14 June 1919).

Fig. d.

Pothos quinquevenosus, V. A. V. R. — (? *P. Albertisii*, ENGL., forma vel var.).

Eupothos, Papuani. — *P. Albertisii* ENGL. affinis. — Foliorum petiolus $4^1/_2$—$7^1/_2$ cm. longus, apice $1^1/_2$—$2^1/_4$ cm. latus, truncatus, vix auriculatus, angulis rotundatis, venis collectivis 5 utrinque; lamina ovata, 8—10 × 3—4 cm., ad vel infra medium latissima, basi rotundata vel subtruncato-rotundata, apice sensim acuminata, venis collectivis 5 utrinque, interiore e medio costae nascente. Pedunculus ± $7^1/_2$ cm. longus, postremo paullo longior. Spatha ovata vel ellipsoideo-oblonga, $2^1/_2$—3 × $1^1/_2$ cm., basi rotundata vel rotundato-cuneata, apice sensim acuminata. Spadix sessilis, conoideo-fusiformis, florifer 3—$3^1/_2$ cm. longus, infra medium 4—5 mm. crassus, apicem obtusiusculum versus sensim paullo attenuatus; baccae in specimine subglobosae vel crasse ovoideae, ± 1 cm. longae.

New Guinea: near Prauwen Bivak, in swampy forest, alt. 90 m. (H. J. LAM No. 1041, 5 September 1920).

Pothos papuanus, BECC., Mal., I, 261, tab. XVI, fig. 5—7; ENGL., in Pflzrch., XXI (IV, 23 *B*), Arac.-Potoid., 34.

H. J. LAM's No. 955 from Prauwen Bivak, in forest, alt. 80 m., 29 August 1920, which is very probably this species, is distinguished as follows: Internodes to ± 2 cm. long. Leaves with the petiole to 5 × 1 cm., the lamina to $7^1/_2$—$12^1/_2$ × $2^1/_2$—4 cm. Peduncle to $7^1/_2$ cm. long, dark-purple, as are the bracts, when dry dark-brown. Spathe to $2^1/_2$ cm. long, dark-purple, greenish, when dry pale-brown. Spadix to $2^1/_4$ cm. long, yellow, when dry fuscous.

Pothos cuspidatus, V. A. V. R.

Allopothos, Longevaginati. — Internodia superiora ramulorum floriferorum $^3/_4$—1 cm. longa, 1 mm. crassa. Foliorum petiolus $1^1/_2$—$2^1/_2$ cm. longus, longissime angusteque vaginatus; lamina flaccido-coriacea vel -chartacea, elliptico-lanceolata, ± $7^1/_2$—$12^1/_2$ × $1^1/_2$—4 cm., apice in foliis latioribus abrupte, in foliis angustioribus ± sensim et longe angusteque subulato-cuspidata, basi in foliis latioribus obtusa, in foliis angustioribus ± acute cuneata; venae collectivae 2 utrinque, marginem laminae approximatae. Pedunculus gracilis, ± 1 cm. longus. Spatha e basi ovata subulato-lanceolata, $2^1/_2$—3 cm. longa, 4—5 mm. lata. Spadix sessilis, oblongus, florifer $^3/_4$—1 cm. longus, $2^1/_2$—3 mm. crassus, obtusus; baccae elongato-obovoideae, 1—$1^1/_4$ cm. longae, $^1/_2$ cm. crassae.

New Guinea: northern slope of mountain ridge near Doorman Summit, alt. 1420 mm. (H. J. LAM No. 1566, 8 August, 1920).

Pothos ovatifolius, ENGL., in Pflzrch., XXI (IV, 23 *B*), Arac.-Pothoid., 40.

Var. **simalurensis**: Internodia 6—10 cm. longa. Foliorum petiolus quam lamina duplo ad triplo brevior, usque 10 cm. longus; lamina late ovata, 9—23 × 9—13 cm., inaequilatera, cuspida gracillima 5—10 mm. longa instructa, basi cordato-emarginata, interdum late rotundata, venis collectivis 5—7 utrinque. Pedunculus postremo usque 10 cm. longus. Spatha lineari-oblonga, cuspide inclusa 14 cm. longa, 4 cm. lata, basi rotundato-cuneata, apice obtusa, abrupte gracillime cuspidata, cuspide 2 cm. longa. Spadix stipite ± $1^1/_2$ cm. longo suffultus, 8—12 cm. longus; baccae ovoideae vel conoideo-ovoideae, $^3/_4$—$1^1/_2$ cm. longae, $^3/_4$—1 cm. crassae, virides et rubrae. — Perhaps a distinct species intermediate between *P. ovatifolius* ENGL. and *P. Rumphii* SCHOTT.

Island Simaloer (near north-west coast of Sumatra): Tapoh, Dèfajan, to 15 m. high scandent in swampy forest (ACHMAD No. 1683, 12 February 1920).

Raphidophora novo-guineensis, ENGL., in SCHUM., Flor. Kais. Wilh.-l., 19; Pflzrch., XXXVII (IV, 23 *B*), Arac.-Monstr., 20, fig. 3.

The typical form of this species is unknown to me. — H. J. LAM's No. 763 (New Guinea, near Pionier Bivak, in forest, alt. 10 m., flowering August 1920) agrees perfectly in aspect (not in the dimensions) with VERSTEEG's No. 330, determined by KRAUSE. It is distinguished from the diagnosis and figure given by ENGLER as follows: Stem to 2 m. high climbing, slender, when dry 3 mm. thick, the internodes 1 — 3 cm. long. Leaves with the petiole to 5 — $7^1/_2$ cm. long, sheathing commonly somewhat more than half its length, sometimes to the knee which is $^1/_2$ — 1 cm. long; lamina when dry thinly papyraceous, obovate, to 15 — 21 × 5 — 8 cm., broadest above the middle, somewhat unequal-sided, the apex generally suddenly acutely acuminate, the base acute to bluntly rotundate-cuneate; primary veins 10 — 15 on a side, separated by 5 — 9 secondary, tertiary and quaternary veins that are becoming gradually finer. Spathe broadly ellipsoidal, $1^1/_4$ — $1^3/_4$ cm. long, hardly mucronulate-apiculate, when fresh pale-yellow on the outer side, white on the inner side. Spadix broadly ellipsoidal-oblong, 1 — $1^1/_4$ cm. long, ± half as thick, yellow-white, with the stigmata brown. — Perhaps a distinct species.

Raphidophora Kunstleri, HK. F., Flor. Br. I., VI, 546; ENGL. & KRAUSE, in ENGL., Pflzrch., XXXVII (IV, 23 *B*), 30.

This species is unknown to me. A plant received from Malacca (Perak, Ipoh, I. H. BURKILL No. 6267) under the name of *Rhaphidophora Kunstleri*, which may be this species, is distinguished from the diagnosis given by ENGLER and KRAUSE in having all the dimensions much smaller, the petiole at best $17^1/_2$ cm. long, when dry densely, minutely puncticulate-asperulous, with the sheath persistent, the lamina 18 — 23 × $4^1/_2$ — $6^1/_2$ cm., distinctly unequal-sided, the broadest side + $1^1/_2$ × as broad as the other side, when dry beneath densely, minutely puncticulato-asperulous except on the primary veins, the costa beneath asperulous and deciduously short-hairy, the peduncle and spadix smaller.

Raphidophora parvifolia, V. A. V. R.

Caudex usque + 4 m. alte scandens, foliis in seriebus 2 oppositis contra substratum appressis; internodia 1 — 2 cm. longa, $2^1/_2$ — 3 mm. crassa, puncticulis minutissimis, crebris subasperula. Foliorum petiolus brevissimus, 2 — 3 mm. longus, paullo ultra basin laminae canaliculatus, sulco margine incrassato; lamina in sicco flaccido-papyracea, glabra, breviter ovata vel interdum breviter subovalis, 3 — 6 × 2 — $3^1/_2$ cm., basi rotundata vel leviter emarginata, apice obtusa vel obtusiuscula, brevissime decidueque apiculata; costa venae principalesque subtus prominentes; venae primariae secundariaeque numerosae, vix diversae, 1 — 2 mm. distantes, venis tertiariis quaternariisque gracillimis, cum ceteris partim parallelibus, partim anastomosantibus interpositis. Pedunculus pro ratione crassus, $2^1/_2$ cm. longus. Spatha. . . . . Spadix sessilis, conoideo-cylindraceus, florifer 4 cm. longus, supra basin

± $^3/_4$ cm. crassus, fructifer paullo longior, apice ± attenuatus; ovaria + 3 mm. longa, 2-locularia, basi compressa, apice in sicco irregularia, in vivo probabiliter plus minusve angulosa, depressa; ovula numerosa, a basi usque ad apicem loculorum affixa; stigma vix elevatum, rotundato-disciforme; baccae aurantiaco-luteae, glutinosae; semina multa, subcurvato-oblonga.

This species is distinguished in having the groove of the petiole, which is somewhat longer than the petiole itself, produced beyond the base of the lamina, along the *under- (not* the *upper-)* side of the costa, close to the underside of one of the halfs of the lamina; the thickened margin of the groove consists probably of the persistent base of a very caducous sheath. — It was very difficult to make out the 2-locularity of the ovaries and it was only possible to state, that the ovules are numerous, arranged from the base of the loculi (loculus) to the apex, sothat it was also possible that the specimen belonged to a multi-ovulate *Epipremnum*, but in the ripe fruit it was very easy to be seen that the seeds are arranged in opposite rows along both sides of a complete, central dissepiment.

Ternate: Lagoena, in jungle, alt. 280 m. (V. M. A. BEGUIN No. 1259, 21 December 1920).

Raphidophora pallidivenia, V. A. v. R.

Caudex scandens; internodia ± $7^1/_2$ cm. longa, primum viridia, demum brunneo-grisea, puncticulis minutissimis, valde numerosis subopaca. Foliorum petiolus 15—30 cm. longus, viridis, copiose, graciliter puncticulatus, supra leviter canaliculatus, usque vel fere usque ad geniculum vaginatus; vagina mox scariosa, dilacerata, decidens; geniculum $1^1/_2$—3 cm. longum, gibbis minutissime puncticuliformibus subasperulum, supra complicato-canaliculatum, acute 2-marginatum; lamina in vivo coriacea, lanceolata, 20—40 × 6—12 cm., leviter inaequilatera, latere altero ± $1^1/_4$-plo latiore, supra laete viridis, perpallide marginata, nitida, valde copiose pallidius puncticulata, subtus pallidior, costa venis primariisque perpallide viridibus; basi rotundato-cuneata, laminarum minorum obtusiuscula, laminarum majorum acutiuscula, in margines geniculi abrupte transiens; costa crassa, supra anguste canaliculata, subtus valde prominens; venae primariae secundariaeque 13—18 utrinque, subaequales, $^3/_4$—$1^1/_2$, raro 2 cm. distantes, supra impressae, subtus prominentes, venis tertiariis quaternariisque gracillimis 4—10 interpositis. Pedunculus $7^1/_2$—10 cm. longus, viridis. Spatha mox exsiccata dilacerata, decidens. Spadix sessilis, conoideo-cylindraceus, 6—8 cm. longus, $1^3/_4$—2 cm. crassus, apicem obtusum versus paullo attenuatus; ovaria ± 4—5 mm. longa, basi compressa, apice irregulariter 4—6-angulosa, 2—3 mm. crassa, leviter conoidea, subtruncata, perpallide flavido-viridula, subalba; ovaria 4—6 suprema in ovarium unum, valde irregulare, stigmatibus 4—6 coronatum connata; stigma vix elevatum, parvum et subrotundum vel in ovariis inferioribus superioribusque saepe elongatum, brunnescens vel nigro-fuscescens; semina numerosa, placentis parietalibus 2, oppositis affixa.

The description is taken from living plants cultivated in the Buitenzorg Gardens, flowering April 1921.

New Guinea: Varenrivier (DJIBDJA).

Raphidophora drepanophylla, V. A. V. R.

R. silvestri ENGL. affinis. — Caudex ramosus, internodiis 1—5 cm. longis, teretiusculis, in sicco 4—5 mm. crassis. Foliorum petiolus 2—5 cm. longus, antice canaliculatus, plerumque usque ad basin laminae vaginatus; lamina tenuiter flaccido-coriacea, subpapyracea, lanceolata, 6—16 × 2—4 cm., leviter inaequilatera, apicem acuminatum versus plerumque falcata, basi obtusa; venae graciles, primariae interdum crassiusculae. Pedunculus 1—1$^1/_2$ cm. longus. Spatha oblongo-ellipsoidea, 4 - 5$^1/_2$ cm. longa, acuminata. Spadix breviter stipitatus, oblongus, ± 3 cm. longus, usque 8 mm. crassus, obtusus; ovaria in sicco non distincte prismatica, ± 3 longa, apice plana, 1 mm. crassa; stigma parvum, leviter elevatum.

New Guinea: near Prauwen Bivak, in forest, alt. 100 m. (H. J. LAM No. 1014, 1 September 1920).

Raphidophora oligosperma, V. A. V. R.

Caudex usque 15 m. alte scandens, ramis pendulis, internodiis ramulorum fioriferorum 1$^1/_2$—2 cm. longis. Foliorum petiolus 7$^1/_2$—12$^1/_2$ cm. longus, antice canaliculatus, usque ad vel ultra basin geniculi $^3/_4$—1 cm. longi vaginatus; vagina apicem versus sensim angustata, mox exsiccata, dilacerata, decidens; lamina in sicco tenuiter coriacea, supra obscure viridis, punctis et striolis brevissimis, venis parallelibus munita, lanceolata vel oblanceolata, plus minusve falcata, utrinque subaequaliter angustata, 18—27 × 4—5 cm., inaequilatera, latere altero ± 1$^1/_2$-plo latiore, basi acuta, apice acute acuminata, longiuscule, graciliter apiculata; venae numerosae, erecto-patentes, utrinque prominentes, secundariae quam primariae paullo graciliores, quam tertiariae paullo crassiores. Pedunculus 8—9 cm. longus. Spatha conoideo-fusiformis, 6 cm. longa, 1 cm. ampla, acuminata. Spadix brevissime stipitatus, cylindraceus, florifer 4$^1/_2$ cm. longus, $^3/_4$ cm. crassus, demum major; ovaria prismatica, in sicco graciliter, longitudinaliter rugulosa, apice applanata, 4—6-angulosa, in medio leviter depressa; ovula numerosa; stigma sessile, majusculum, rotundatum vel oblongum; baccae in specimine examinato oligospermae.

Ternate: North Foramadiahi, in forest, alt. 1000 m. (V. M. A. BEGUIN No. 1457, 5 March 1921).

Raphidophora obliquata, V. A. V. R.

R. Dahlii ENGL. differt ramis internodiis in sicco gracilioribus, 5 mm. crassis, inferioribus et superioribus 1$^1/_2$—2 cm. longis, ceteris 5—10 cm. longis, foliis petiolo breviore, maxime ± 9 cm. longo, lamina plerumque 18—23 × 6$^1/_2$—8 cm. saepe ad vel supra medium latissima, apice obtusiuscule et breviter falcato-acuminata, venis primariis utrinque 6—10, spatha basi

valde oblique affixa, ± $8^1/_2$ cm. longa, longe et graciliter, abrupte acuminata, spadice stipitato, subfructifero ± 5 cm. longo, in sicco $^3/_4$ cm. crasso, ovariis stigmate suboblongo.

New Guinea: near Pionier Bivak, hemiepiphytical in forest, alt. 10 m. (H. J. LAM No. 483, 30 June 1920).

Raphidophora Beccarii, ENGL., Pflzrch., XXXVII (IV, 23 *B*), Arac.-Monster., 46, fig. 20.

A specimen from Pulo Lingga (Resoen, river-side, alt. 40 m, H. A. B. BÜNNEMEIJER No. 6785, 18 July 1919) is distinguished in having but a few sparingly incised leaves and many entire leaves with the petiole sheathing mostly to the base of the knee, the lamina lanceolate or oblanceolate, 6—7 or more commonly 7—9 times as long as broad, 36—42 × 4—7 cm., broadest at or more commonly above the middle, unequal-sided, the broadest side $1^1/_4$—$1^1/_2$ × as broad as the narrowest side, the base mostly very acute, the apex rather acutely long-acuminate, the peduncle $7^1/_2$—10 cm. long, the spadix 5—$7^1/_2$ cm. long, $^1/_2$—$^3/_4$ cm. thick, pale-green. — Apparently a young though copiously flowering specimen.

Raphidophora Korthalsii, SCHOTT, in Ann. Mus. Bot. L. B., I, 129; ENGL. & KRAUSE, in ENGL., Pflzrch., XXXVII (IV, 23 *B*), Arac.-Monster., 49.

A plant from Sumatra (Karo-plateau, Brastagi, in forest, alt. 1425 m., J. A. LÖRZING No. 6787, 21 July 1919) agrees very much with the Javanese specimens of this specie s,occurring in the Buitenzorg Herbarium, determined by ENGLER, and the diagnosis given by ENGLER and KRAUSE.

Raphidophora latifolia, V. A. V. R.

R. Korthalsii SCHOTT affinis sed lamina circiter 2-plo longiore, fere 3-plo latiore, laciniis 10—15 utrinque, 3—9 cm. latis, apice angulo antico acuto, venis secundariis tertiariisque inter venas primarias 5—10; spatha viridis; spadix florifer ± 15 cm. longus, $2^1/_2$ cm. crassus, flavido-viridis, fructifer ± 20 cm. longus, $3^1/_4$ cm. crassus.

New Guinea: near Pionier Bivak, hemiepiphytical in forest (H. J. LAM No. 711, 23 July 1920).

Schismatoglottis Brooksii, V. A. V. R.

Caudiculus usque ± 10 cm. altus, crassiusculus. Foliorum petiolus 10—15 cm. longus, ± usque ad medium vaginatus, olivaceus, inter vaginam laminamque subteres, antice ± applanatus et anguste roseo-2-marginatus, ceterum brevissime et decidue glanduloso-puberulus; vagina mox marcescens, decidua; lamina herbacea, cordata, 15—20 × 8—12 cm., supra obscure viridis, copiose, minutissime pallide puncticulata, anguste, pallide (albido-) marginata, subtus pallidior, subglauca; lobus anticus breviter acuminatus;

lobi postici majusculi, semiovales, 2—4 × 3—6 cm.; costa, venae primariae secundariaeque subtus brevissime et decidue glanduloso-puberulae; venae primariae secundariaeque copiosae, basales + radiantes, costales sensim ascendentes, omnes apicem versus sursum curvatae, subtus prominentes; venae tertiariae quaternariaeque graciles. Pedunculus crassiusculus, + 4 cm. longus, pallide olivaceus, graciliter, longitudinaliter, pallide ruguloso-striatus, inter strias minutissime roseo-puncticulatus, ad strias brevissime et decidue glanduloso-puberulus. Spathae tubus obconoideo-obovoideus, + 3 cm. longus, $1^1/_2$ cm. amplus, viridis, copiose, minutissime roseo-puncticulatus; lamina convoluta conoideo-cylindracea, + 10 cm. longa, 1 cm. ampla, pallide flavido-viridis, roseo-marginata, graciliter (indistincte), longitudinaliter olivaceo-striata, inter strias indistincte roseo-puncticulata, apicem versus sensim longiuscule et acute acuminata. Spadix antice brevissime stipitatus, 8—9 cm. longus; inflorescentia feminea cylindraceo-ovoidea, 2 cm. longa, 1 cm. crassa, basi et apice staminodiis paucis, pistilla non vel paullo superantibus, subcapitatis, albis, breviter et crasse viridi-stipitatis munita; ovaria ovoidea, perpallide viridia; stigma crasse pulvinatum, perpallide viride, subalbum; inflorescentia mascula a feminea interstitio conoideo-cylindraceo, 1 cm. longo, $^1/_2$ cm. crasso, organis neutris, plano-depressis, albidis vel perpallide roseis, basalibus crebris, ceteris sparsis munito separata, parte basali fertili cylindracea, $1^1/_2$ cm. longa, $^1/_2$ cm. crassa, perpallide aurantiaco-flavida, staminibus inferioribus sterilibus, in organa neutra transientibus, parte apicali sterili e basi rotundato-truncata conoideo-cylindracea, 4 cm. longa, $^3/_4$ cm. crassa, perpallide aurantiaco-rosea, apicem acutiusculum versus attenuata, staminodiis subprismaticis, apice truncatis, irregulariter 4—6-angulosis.

The description is taken from a living specimen cultivated in the Buitenzorg Gardens, flowering January 1922.

Sumatra: Bengkoelen, Lebong Tandai (C. J. BROOKS).

Schismatoglottis parvifolia, V. A. V. R.

Herba parva, foliis nutantibus vix 10 cm. alta; caudex 2 cm. longus, 1 cm. crassus. Foliorum petiolus 3—5 cm. longus, viridis, ad $2^1/_2$—$3^1/_2$ cm. longitudinis vaginatus, antice inter vaginam laminamque planiusculus, leviter canaliculatus, 2-marginatus; lamina firmiter herbacea, oblonga, 8—10 × 3—4 cm, paullo inaequilatera, supra obscure viridis, copiose, minutissime albido-puncticulata, subtus pallidior, basi breviter cordata, lobis semiorbicularibus, usque $^3/_4$ × $1^1/_2$ cm., apice acuminata, breviter apiculata; venae primariae 6—10 utrinque, prominentes, ascendentes, apicem versus sursum curvatae; venae secundariae quam primariae partim vix, partim valde graciliores; venae tertiariae graciles, omnes venis quaternariis, transversalibus, gracilibus unitae. Pedunculus brevis, 1 cm. longus. Spathae tubus oblique oblongo-ovoideus, $1^1/_4$ cm. longus, $^2/_3$—$^3/_4$ cm. amplus, viridis; lamina ovoidea, 2 cm. longa, 1 cm. ampla, quam tubus pallidior, breviter,

acute acuminata. Spadix 3 cm. longus; inflorescentia feminea conoidea, in dorso dimidia parte spathae adnata, staminodiis perpaucis, sparsis, quam pistillis paullo longioribus, minute globosis vel capitatis, longe stipitatis, albis munita; ovaria oblongo-ovoidea, viridia, apice leviter contracta; stigma parvum; inflorescentia mascula femineae subcontigua, ellipsoideo-clavata, $1^1/_2$ cm. longa, $3^1/_2$ mm. crassa, parte basali fertili obconoidea, 9 mm. longa, sordide alba, staminibus apice truncatis, inferioribus sterilibus, elongato-clavatis vel stipitato-globulosis aut -capitulatis, parte apicali sterili semiellipsoidea, eburnea, 6 mm. longa, staminodiis inferioribus apice truncato-rotundatis, irregulariter 4—6-angulosis, ceteris apice rotundatis, apicalibus apice acutiusculis.

The description is taken from a living plant cultivated in the Buitenzorg Gardens.

New Guinea: Mt. Alkmaar (DJIBDJA).

Schismatoglottis calyptrata (RXB.) ZOLL. & MOR., Syst. Verz., 83; ENGL. & KRAUSE, in Pflzrch., LV (IV, 23 *Da*), 114. — *Calla calyptrata*, RXB., Flor. Ind., III, 514.

A plant consisting of a single leaf and a single flower, collected in Berhala Island (Sumatra's Eastcoast, in forest, alt. ± 50 m., J. A. LÖRZING No. 6988, 2 November 1919), which may be a form of this species, differs from the type of this in having the fertile and sterile portions of the masculine inflorescence resupinate, i. e. the lower part sterile, obconical, less than half as long and the upper part fertile, elongate-ellipsoidal, blunt, more than half as long as the whole masculine inflorescence (forma *resupinata*). — The material is too incomplete for the detailed description of an eventually new species.

Schismatoglottis potamophila, V. A. V. R.

Sch. calyptratae ZOLL. & MOR. affinis. — Foliorum petiolus laminam subaequans (paullo longior vel brevior), + usque ad medium vaginatus; lamina oblonga, 9 — 19 × 4 — $7^1/_2$ cm., supra concolor, apice abrupte, breviter, obtusiuscule acuminata, basi in foliis minoribus emarginata, in foliis majoribus cordata; venae primariae 8—12 utrinque. Pedunculus + 9 cm. longus. Spadix + 4 cm. longus; inflorescentia feminea 2 cm. longa, supra basin contractam cylindracea, 3 mm. crassa, apicem versus sensim sub acute conoidea; ovaria oblonga; stigma parvum; staminodia pauca, longe, graciliter stipitata, apice magno, capitato vel clavato-capitato-pistilla superantia; inflorescentia mascula a feminea interstitio nudo, $^1/_4$ cm. longo separata, obconoideo-clavata, parte inferiore sterili obconoidea, $1^1/_4$ cm. longa, apice 4 mm. crassa, parte superiore fertili semiellipsoidea, $^1/_2$ cm. longa, basi 4 mm. crassa, apice late rotundata, staminodiis apice truncatis, rotundato-angulosis.

New Guinea: near Prauwen Bivak, river bank in forest, alt. 60 m. (H. J. LAM No. 886, 24 August 1920).

Schismatoglottis angustifolia, V. A. V. R.

Foliorum petiolus $7^1/_2 - 12^1/_2$ cm. longus, vagina $3 - 4^1/_2$ cm. longa instructus; lamina in sicco tenuiter papyracea, elongato-cordato-triangularis, $11 - 19 \times 2^1/_2 - 4$ cm., supra concolor, basi breviter cordata, apice acuminata; venae primariae $\pm 9 - 11$ utrinque. Pedunculus $\pm 6 - 7$ cm. longus. Spathae tubus e basi acutissima $\pm$ urceolata, $\pm 2^1/_2$ cm. longa; lamina caduca. Spadix ± 4 cm. longus; inflorescentia feminea conoideo-fusiformis, $2^1/_2$ cm. longa, $\pm 3 - 4$ mm. crassa, $\pm$ usque ad medium dorso spathae adnata, apicem laxiflorum versus acutata, staminodiis paucis, quam pistillis $1^1/_2$-plo longioribus, graciliter clavatis, longe et graciliter stipitatis munita; inflorescentia mascula elongato-clavata, apice rotundata, parte basali fertili quam apicali sterili paullo longiore; antherae thecis breviter cupuliformibus; partis sterilis staminodia inferiora apice applanata, superiora apice conoidea, acutiuscula.

New Guinea: near Pionier Bivak, in forest, alt. 10 m. (H. J. LAM No. 710, 23 July 1920).

Schismatoglottis conversa, V. A. V. R.

Caudex brevissimus, probabiliter hypogaeus. Foliorum petiolus 30—40 cm. longus, ad tertiam partem usque vel paullo longius vaginatus; lamina in sicco papyracea, ovata, $16-26 \times 8-14$ cm., supra quam subtus obscurior, secus costam vitta relative angusta, pallida, margine erosa ornata, basi plus minusve distincte cordato-incisa, lobis posticis semiellipticis vel subsemiorbicularibus, $^1/_2-2^1/_2 \times 2-6$ cm., sinu obtusissimo ad acutissimo separatis, lobo antico abrupte vel subabrupte, acute breviterque acuminato; venae primariae 10—15 utrinque, apicem versus sursum curvatae, basales + horizontales, ceterae patentes; venae secundariae quam primariae vix ad valde graciliores; venae tertiariae quaternariaeque graciles, inter se et cum venis ceteris venulis transversalibus gracillimis unitae. Pedunculus 10—15 cm. longus, demum longior. Spatha cylindracea, $7^1/_2$ cm. longa, pallide viridis, supra basin acutam $^1/_2$ cm., infra apicem acuminatum $^3/_4$ cm. ampla, infra medium paullo attenuata. Spadix albus; inflorescentia feminea cylindracea, florifera, $1^1/_2$ cm. longa, 3 mm. crassa, a basi usque ad medium cum spatha connata, fructifera $3^1/_2$ cm. longa, $^3/_4$ cm. crassa, in juventute hic illic staminodiis sparsis, pistilla aequantibus, crasse stipitatis, depresso-globosis (crasse lentiformibus) vel late obconoideis, latitudine crassitudinis ovariorum munita; ovaria breviter et crasse ovoidea; stigma magnum, crasse pulvinatum, latitudine staminodiorum; inflorescentia mascula elongata, parte basali sterili, cylindracea, $2^1/_4$ cm. longa, 6 mm. crassa, staminodiis obconoideis vel obpyramidalibus (fere prismaticis), apice applanatis, rotundis vel irregulariter 4—6-angulosis, parte apicali fertili, clavata, $1^3/_4$ cm. longa, basi 4 mm., infra apicem rotundatum 6 mm. crassa, thecis staminum cupuliformibus, apice applanatis, impressis a supra conspectis reniformibus, leptodermis, apice minute tuberculiformi connectivi paullo superatis.

The description is taken from specimens with young, not yet entirely developed flowers and ripe berries. It may be possible that this species is identical with *Sch. Wallichii* HK. F. var. *fasciata* RIDL., of which, however, the 1-lined description is too brief and incomplete for determination.

Pulo Lingga: Resoen, road-side, alt. 60 m. (H. A. B. BÜNNEMEIJER No. 6782, 18 July 1919).

Schismatoglottis bifasciata, ENGL., in Pflzrch., LV (IV, 23 *Da*), Arac.-Homal.-Schism., 107, fig. 66.

A plant from Borneo (NIEUWENHUIS No. 1311), cultivated in the Buitenzorg Gardens, having flowered August 1921, which may be this species, is distinguished from ENGLER's diagnosis and figure by the following characters: Leaves with the petiole green, sheathing about $^1/_3$ its length, terete, the upper side longitudinally rugose, slightly canaliculate towards the apex, the lower side smooth; lamina sagittate-cordate, ± 15—25 × $7^1/_2$—$12^1/_2$ cm., the 2 bands pale-grey-green or pale-yellow-green, with the base not reaching the margin but suddenly hamato-incurved near the margin, with the point reaching the base of the costa; primary veins less numerous, the secondary ones partly finer than the primary ones, partly nearly as stout; tertiary and quaternary veins distinctly finer. Peduncle green, longitudinally rugulose. Spathe somewhat longer, the tube green, the lamina pale-yellow-green. Spadix longer; feminine inflorescence 3—4 cm. long, 7—8 mm. thick, the lower $^1/_3$—$^1/_2$ part connected with the spathe; ovaries crowded, cylindraceo-lageniform, dirty-white, the higher, however, lax, oviform, white; stigma about as broad as the ovary, white; staminodes ± $1^1/_2$ × as long as the ovaries, white, obconoid, long-stalked, the apex truncate; masculine inflorescence long-fusiform-cylindraceous, 5—$5^1/_2$ cm. long, 6—8 mm. thick, the fertile basal portion obconoid, $1^1/_2$—2 cm. long, pale-brown-yellow, with the lower stamens intermixed with a few oblong or truncate-conical neuter organs, the sterile apical portion bright-yellow, bluntish or rounded at the apex, the staminodes subprismatical, often very irregularly laterally connected.

The spadix preserved in alcohol has the stalks of the lower staminodes, the neuter organs, the filaments and the higher staminodes provided with dark, brown, short stripes or points.

Schismatoglottis latevaginata, ENGL., Pflzrch., LV (IV, 23 *Da*), Arac.-Homal.-Schism., 106.

Caudex short, erected. Leaves with the petiole 5—$7^1/_2$ cm. long, green, sheated $^2/_5$—$^3/_5$ its length, the anterior side flattened or more or less canaliculate and 2-marginate (narrowly winged) beyond the sheath; sheath broad, the apex narrowed on one side, broadly rotundate-truncate on the other side, at length more or less dilacerated; lamina firm-herbaceous,

oblong, $12^1/_2$—$17^1/_2$ cm. long, 5—$7^1/_2$ cm. broad, the upper surface dark-green, with a very broad, paler band on each side near the undulated margin, under surface pale-green, subglaucous, the base blunt or somewhat emarginate, the apex acuminate; primary and secondary veins 12—20 on a side, arcuate-ascending, prominent, subequal, separated by finer tertiary ones, all united by very fine, transversal quaternary ones. Peduncle ± $1^1/_2$ cm. long. Spathe rather thick, suddenly much thickened at the gorge on the inner dorsal side; tube obliquely oblong, ± 2 cm. long, $1^1/_2$ cm. diam., green; lamina cylindraceous, ± 5 cm. long, pale-green, dark-green-acuminate. Spadix ± $5^1/_2$ cm. long; feminine inflorescence obliquely conoid, ± $1^1/_2$ cm. ong, 6 mm. thick at the oblique base which is surrounded by a row of whitish, shortly stipitate, broadly obconoid (sublentiform) staminodes; ovaries obovoid-oblong, very irregularly angular or lobed when seen from above, green; higher ovaries apparently sterile, depressed; stigma small, subsessile, discoid, round, very pale-green; masculine inflorescence conoideo-fusiform, ± 4 cm. long, 4 mm. thick above the obconically attenuated base, narrowed gradually towards the bluntish apex; fertile basal portion pale-yellow; stamina truncate and 2-foveolate at the apex; lower stamina sterile, obconoid or shortly stipitate-sublentiform, whitish; sterile apical portion as long as the fertile portion, yellow, the staminodes truncate and irregularly 4—6-angular at the apex.

The description is taken from a living specimen cultivated in the Buitenzorg Gardens.

Borneo. (NIEUWENHUIS No. 1968).

Scindapsus Beccarii, ENGL., in Bot. Jahrb., I, 182; in BECC., Mal., I, 277; in Pflzrch., XXXVII (IV, 23 *B*), Arac.-Monster., 69, fig. 28.

Var. **lingganus:** A forma *typica* differt dimensionibus omnibus minoribus. Foliorum petiolus 6—15 cm. longus, vagina late, decidue scarioso-marginata; lamina oblanceolata 12—27 × 4—9 cm., supra medium latissima; venae numerosae, secundariae, tertiariae quaternariaeque quam primariae sensim graciliores, omnes in sicco ± prominentes. Pedunculus usque 5 cm. longus. Spatha usque 6 cm. longa, $1^1/_2$ cm. ampla, acuminata, alba. Spadix usque 4 cm. longus, 1 cm. crassus, eburneus. — Lingga Archipelago: Poeloe Singkep, near Manggoe, in forest, alt. 60 m. (H. A. B. BÜNNEMEIJER No. 7184, 2 August 1919).

Scindapsus altissimus, V. A. V. R.

Sc. cuscuarioideo ENGL. & KR. affinis. — Caudex usque 40 m. alte scandens. Foliorum petiolus 35—50 cm. longus, usque $1^1/_2$—$4^1/_2$ cm. infra geniculum vaginatus; vagina coriacea, persistens; lamina coriacea, subrotundato- ad ovato-oblonga, 17—50 × 9—30 cm., plus minusve inaequilatera, altero latere maxime fere $1^1/_2$-plo latiore; venae innumerabiles,

subaequales, primariae hinc inde paullo incrassatae. Spatha in specimine conoideo-cylindracea ± 50 cm. longa. Spadix conoideo-cylindraceus, in specimine 45 cm. longus, 3 cm. crassus, ex schedula usque 47 cm. longus, $6^1/_2$ cm. crassus, infra medium crassissimus, apicem acutiusculum versus sensim attenuatus; ovaria apice prismatica, irregulariter 4—6-angulosa, truncata.

New Guinea: near Prauwen Bivak, alt. 210 m. (H. J. LAM No. 1231, 16 September 1920).